



Appendix for Test report

Appendix A: DTS (6 dB) Bandwidth

In this document, the "DTS6dBBW" refers to the measured "DTS (6 dB) Bandwidth" value. In this Appendix, the "fc(DTS6dBBW)" refers to the centre of the measured "DTS6dBBW". The introduction of the "fc(DTS6dBBW)" is due to that other measurements use it as the spectrum analyzer setting.

For measurements on smart antenna systems (devices with multiple transmit chains), the test is performed at each chain, and used as respective results for each chain.

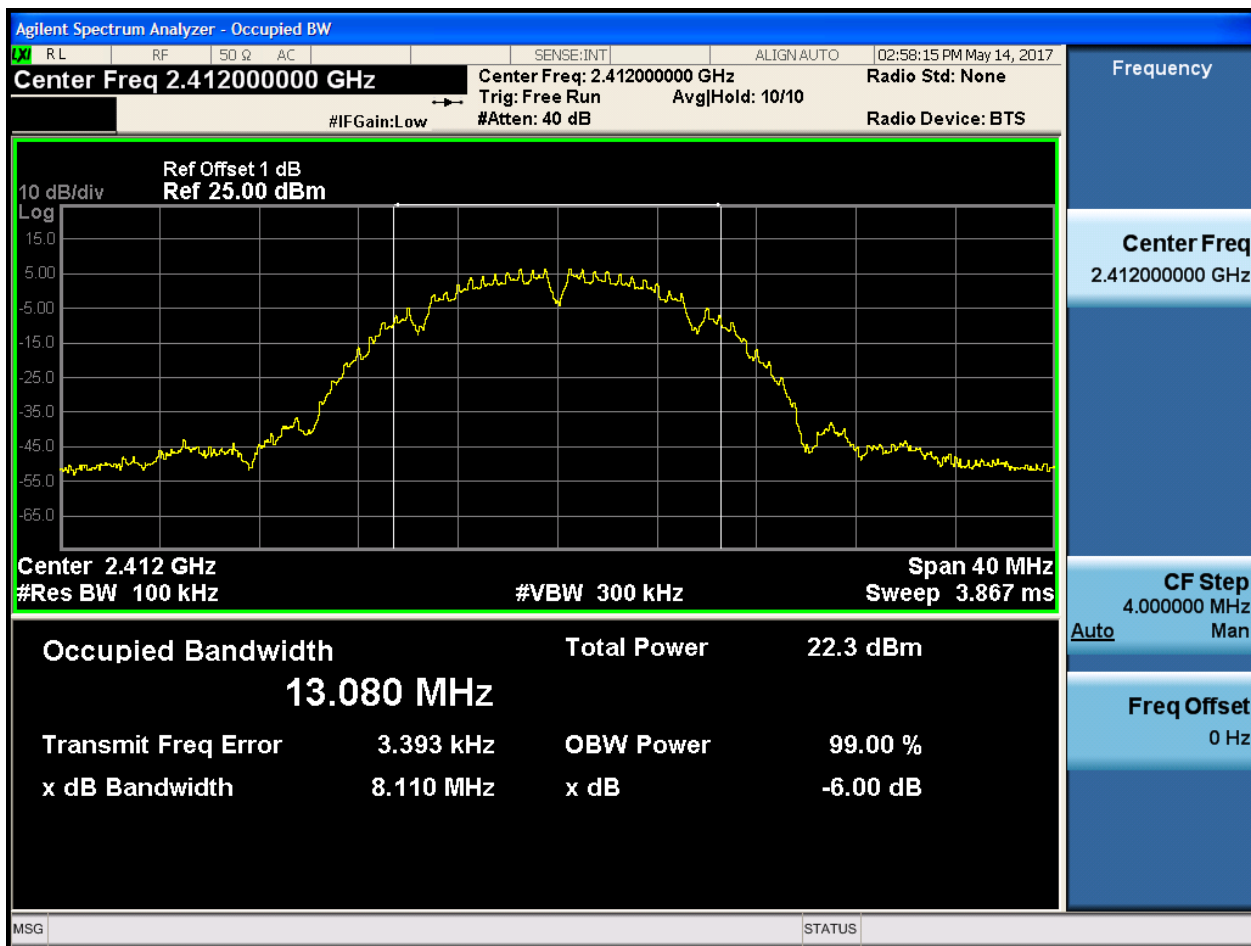
Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	DTS6dBBW[MHz]	Verdict
11B	L	2412	Ant 1	8.11	pass
11B	M	2437	Ant 1	8.59	pass
11B	H	2462	Ant 1	8.11	pass
11G	L	2412	Ant 1	16.41	pass
11G	M	2437	Ant 1	16.38	pass
11G	H	2462	Ant 1	16.37	pass
11N20	L	2412	Ant 1	17.60	pass
11N20	M	2437	Ant 1	17.61	pass
11N20	H	2462	Ant 1	17.59	pass
11N40	L	2422	Ant 1	35.23	pass
11N40	M	2437	Ant 1	35.18	pass
11N40	H	2452	Ant 1	35.26	pass



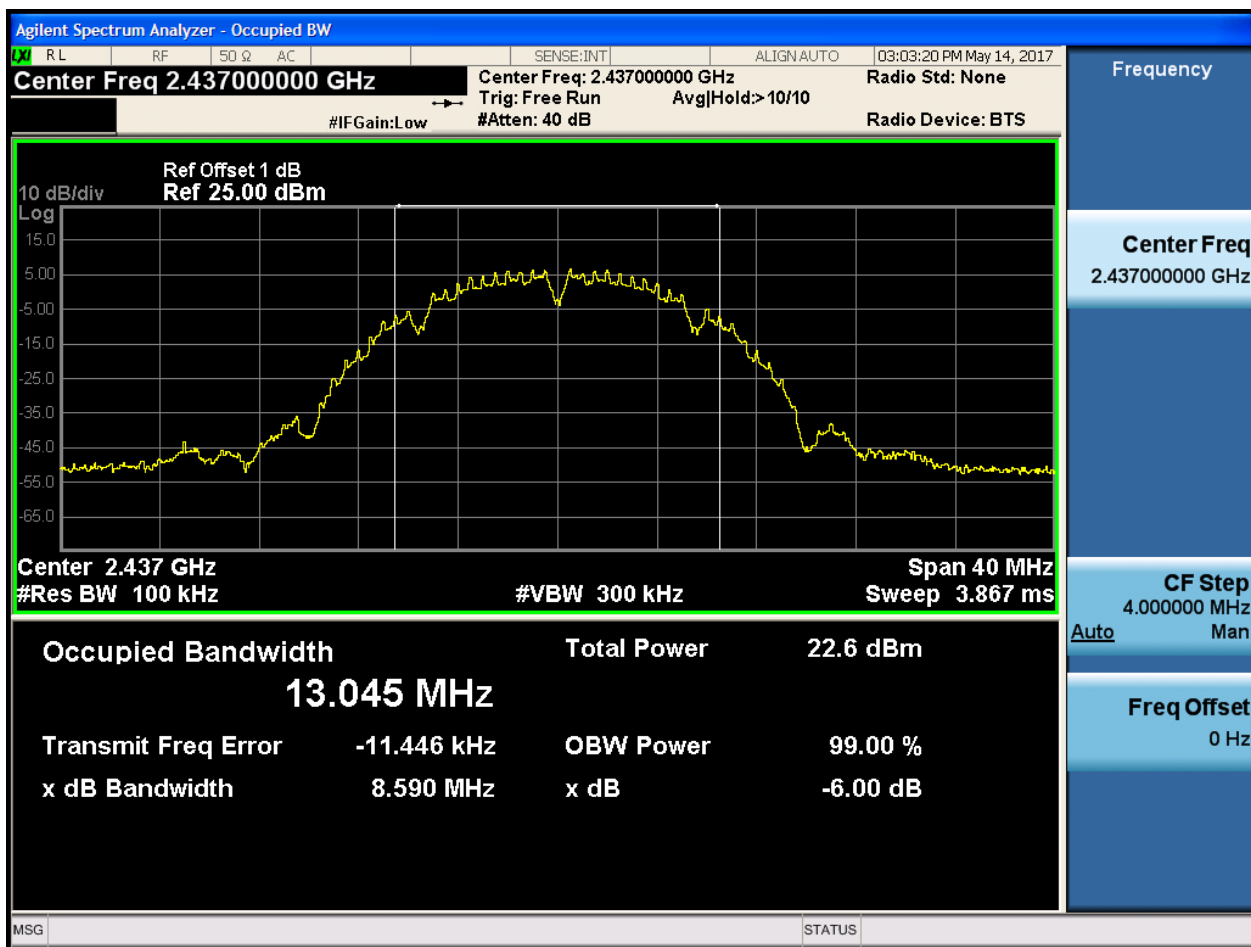
Part II - Test Plots

2.1 11B_L@Ant 1



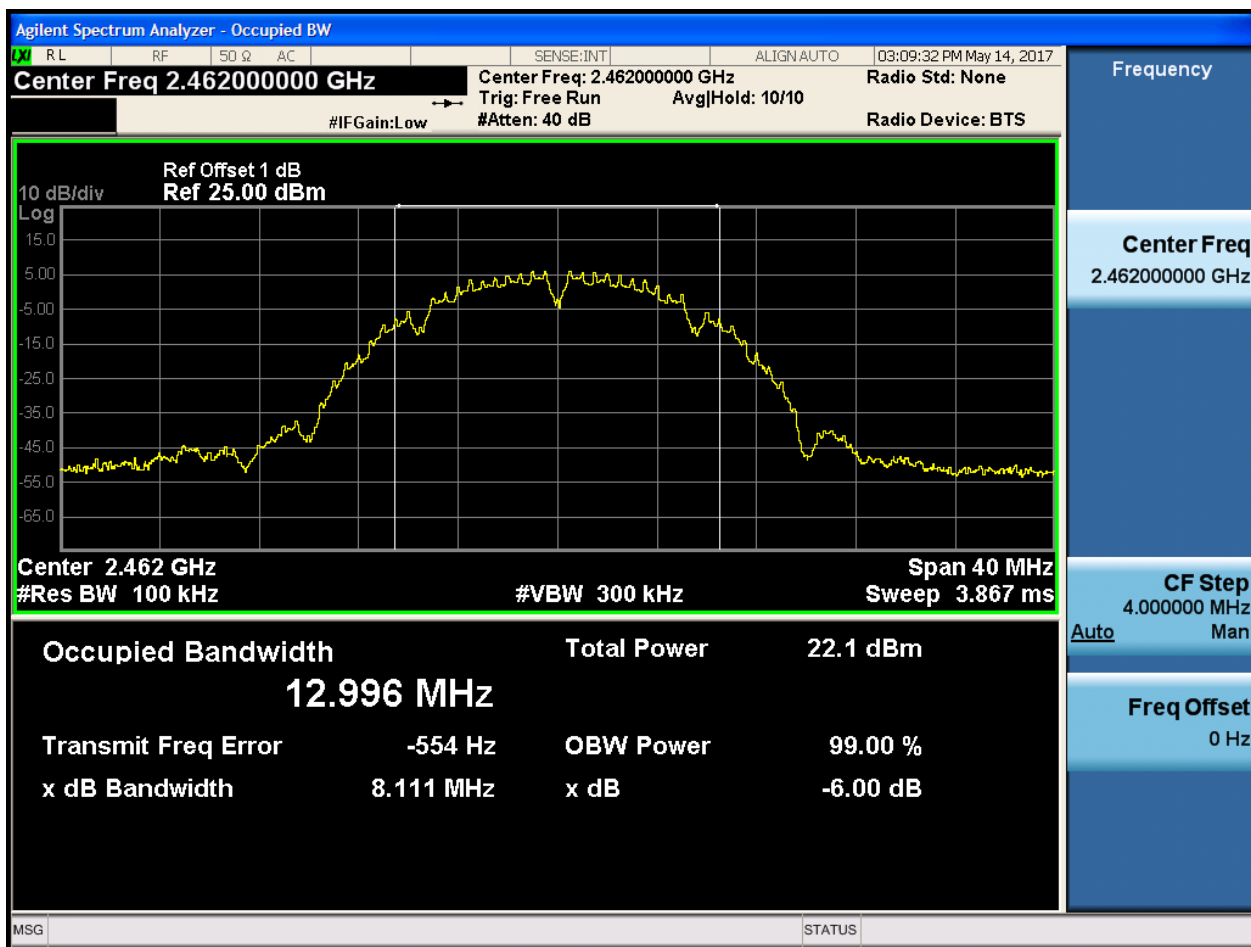


2.2 11B_M@Ant 1



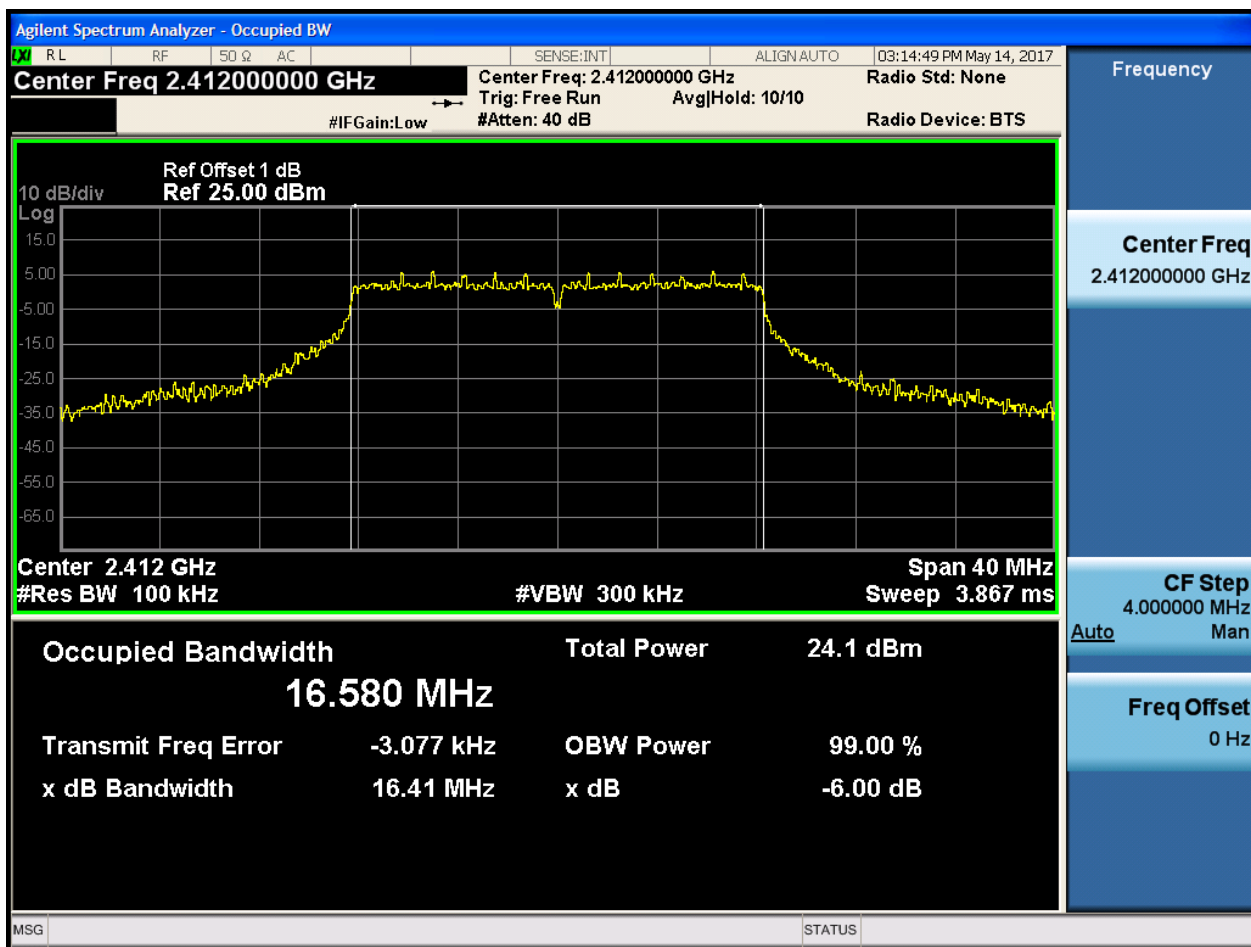


2.3 11B_H@Ant 1



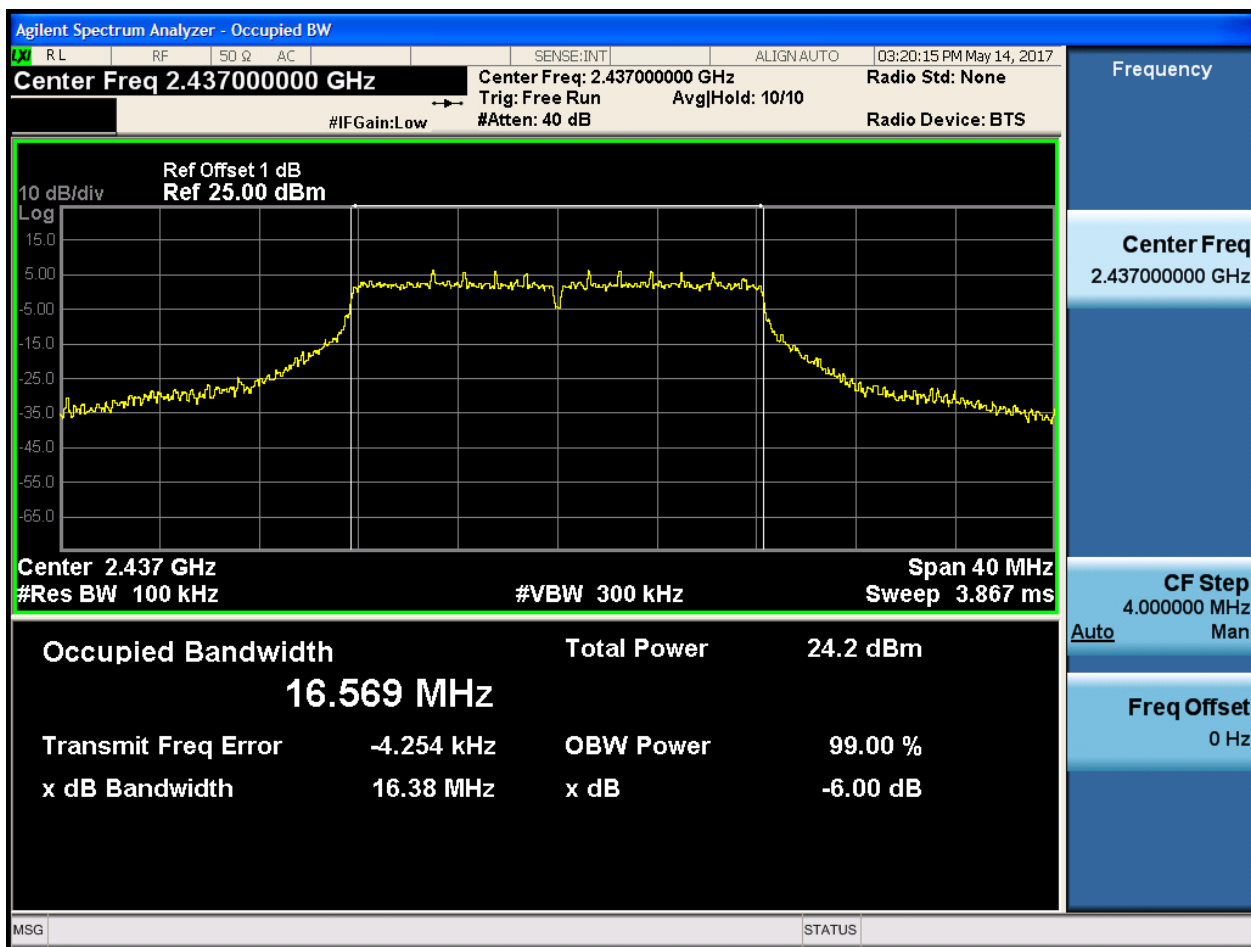


2.4 11G_L@Ant 1



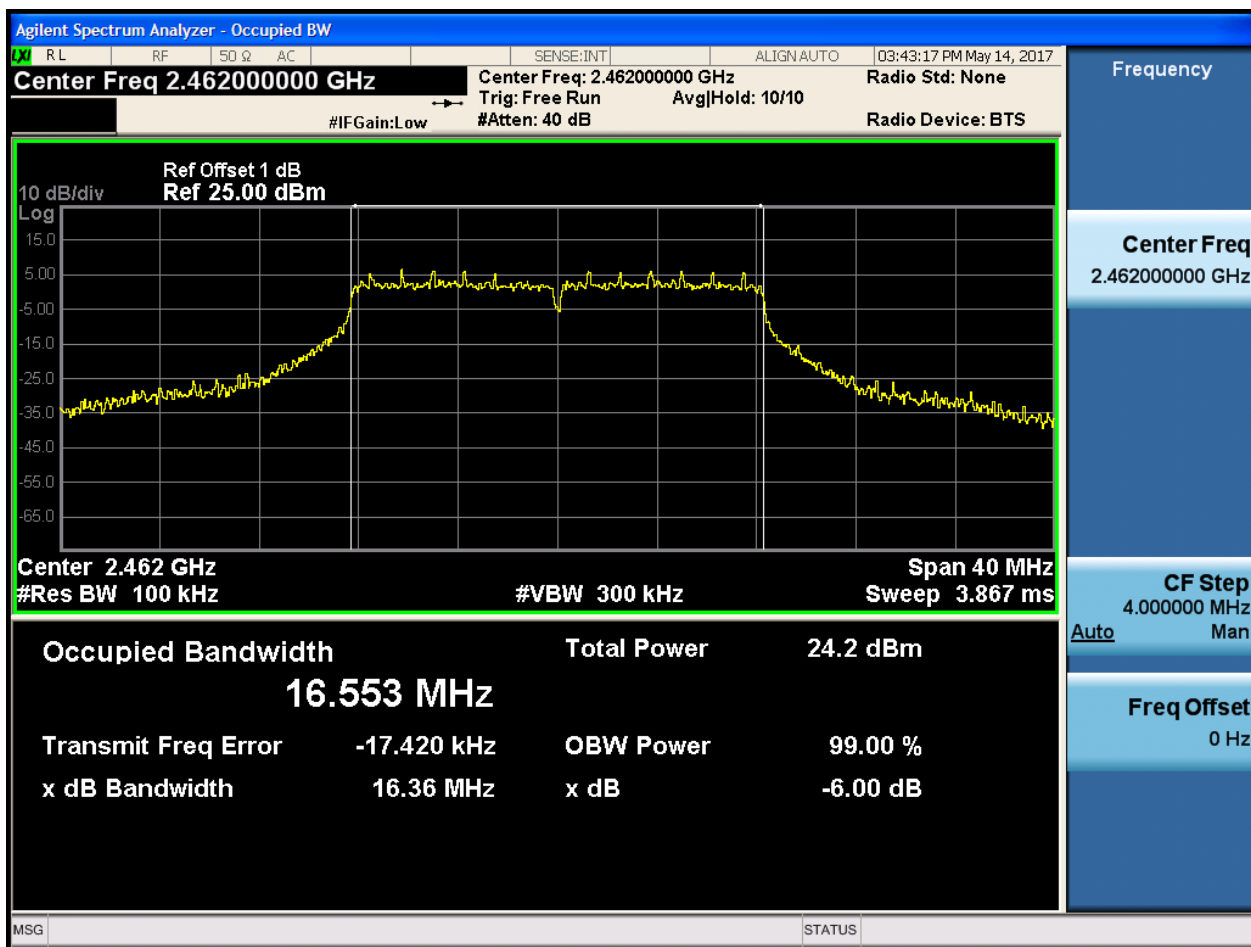


2.5 11G_M@Ant 1



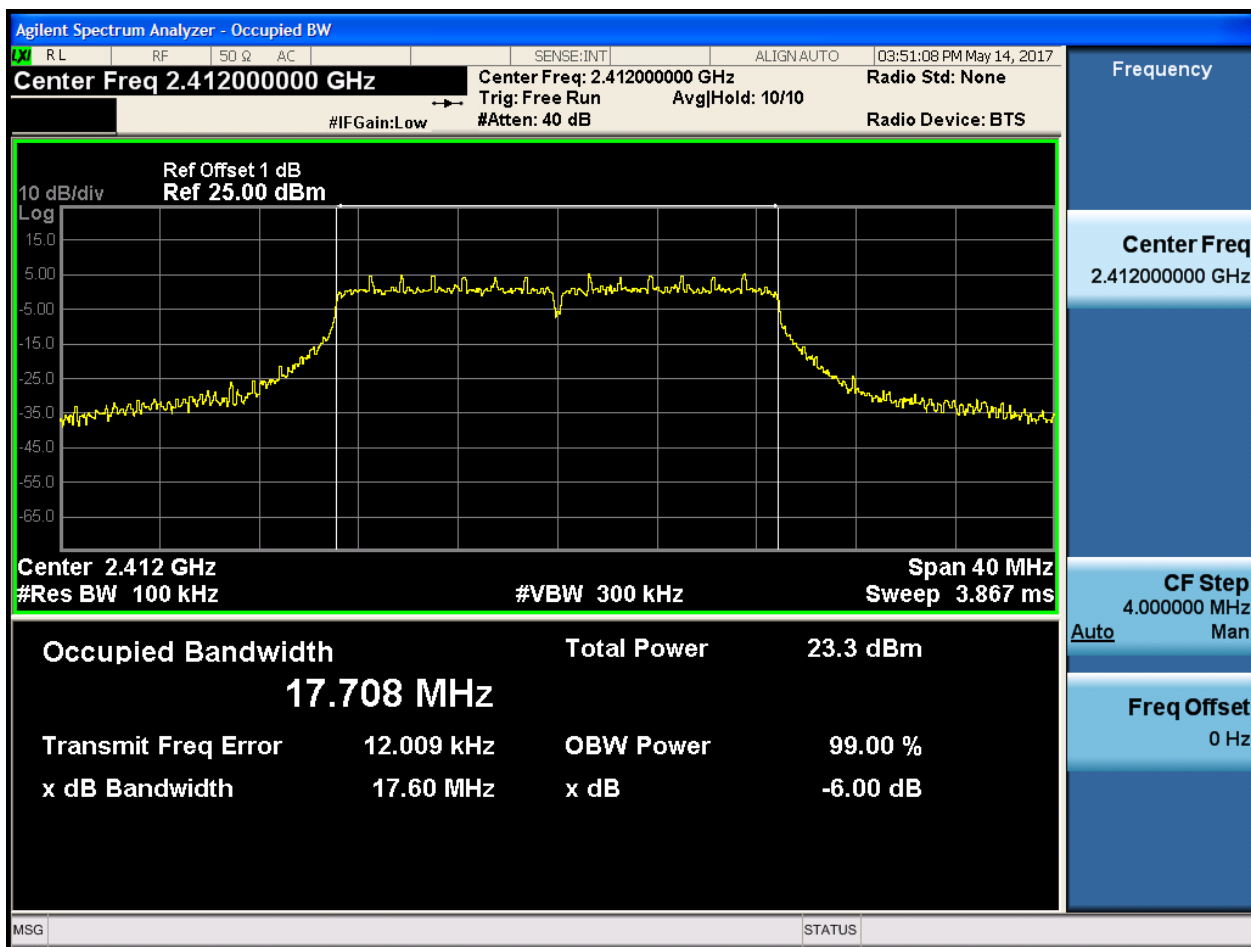


2.6 11G_H@Ant 1



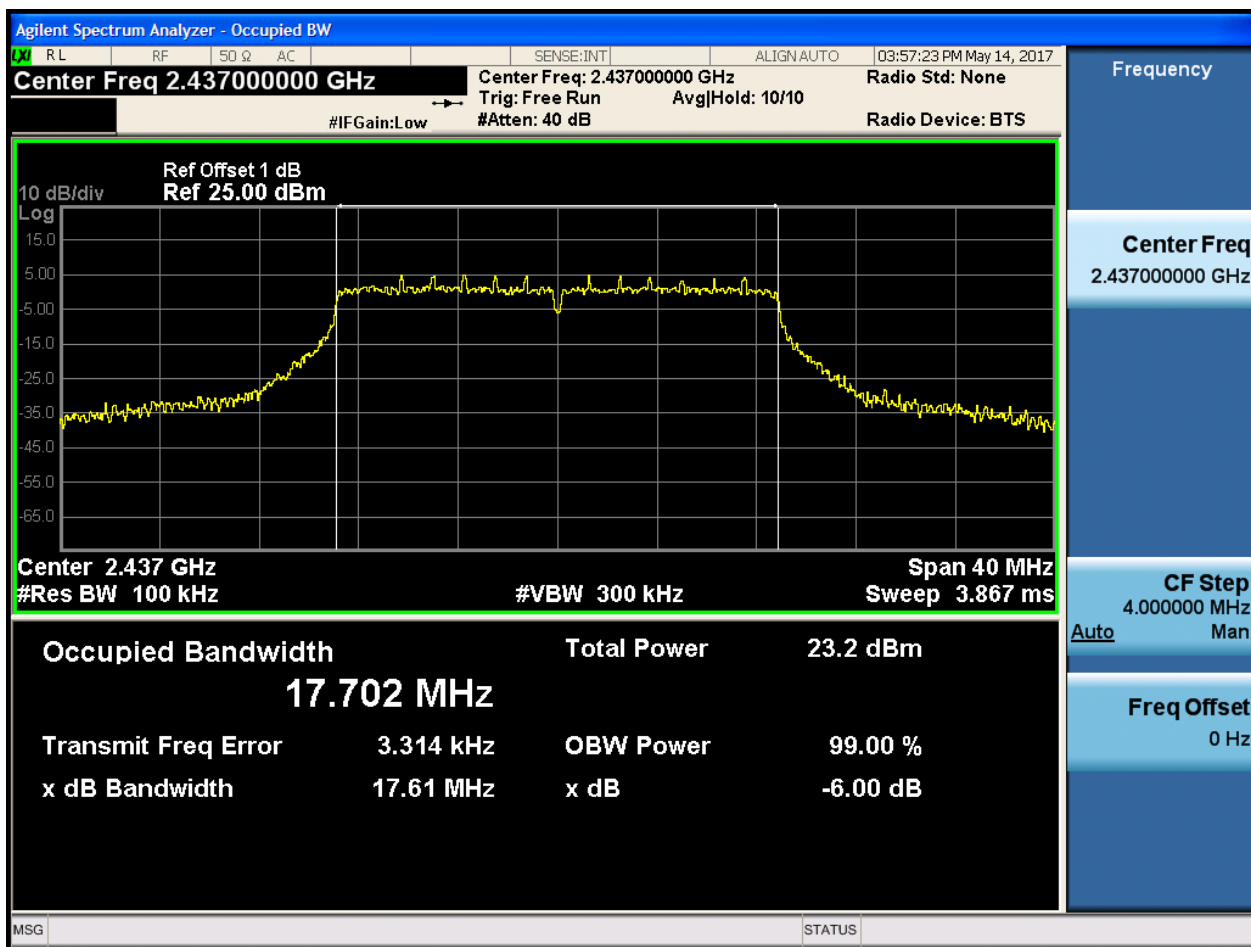


2.7 11N20_L@Ant 1



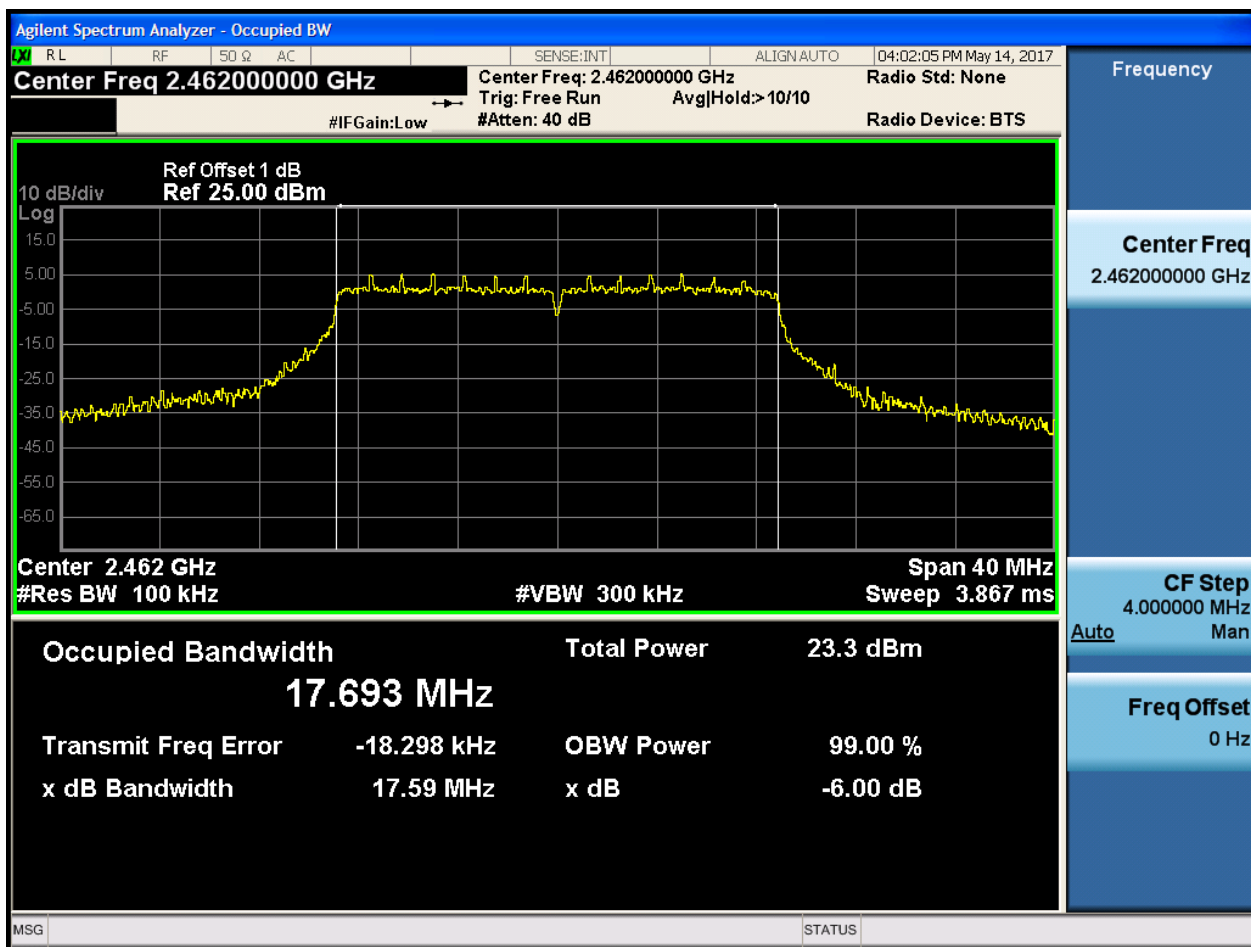


2.8 11N20_M@Ant 1



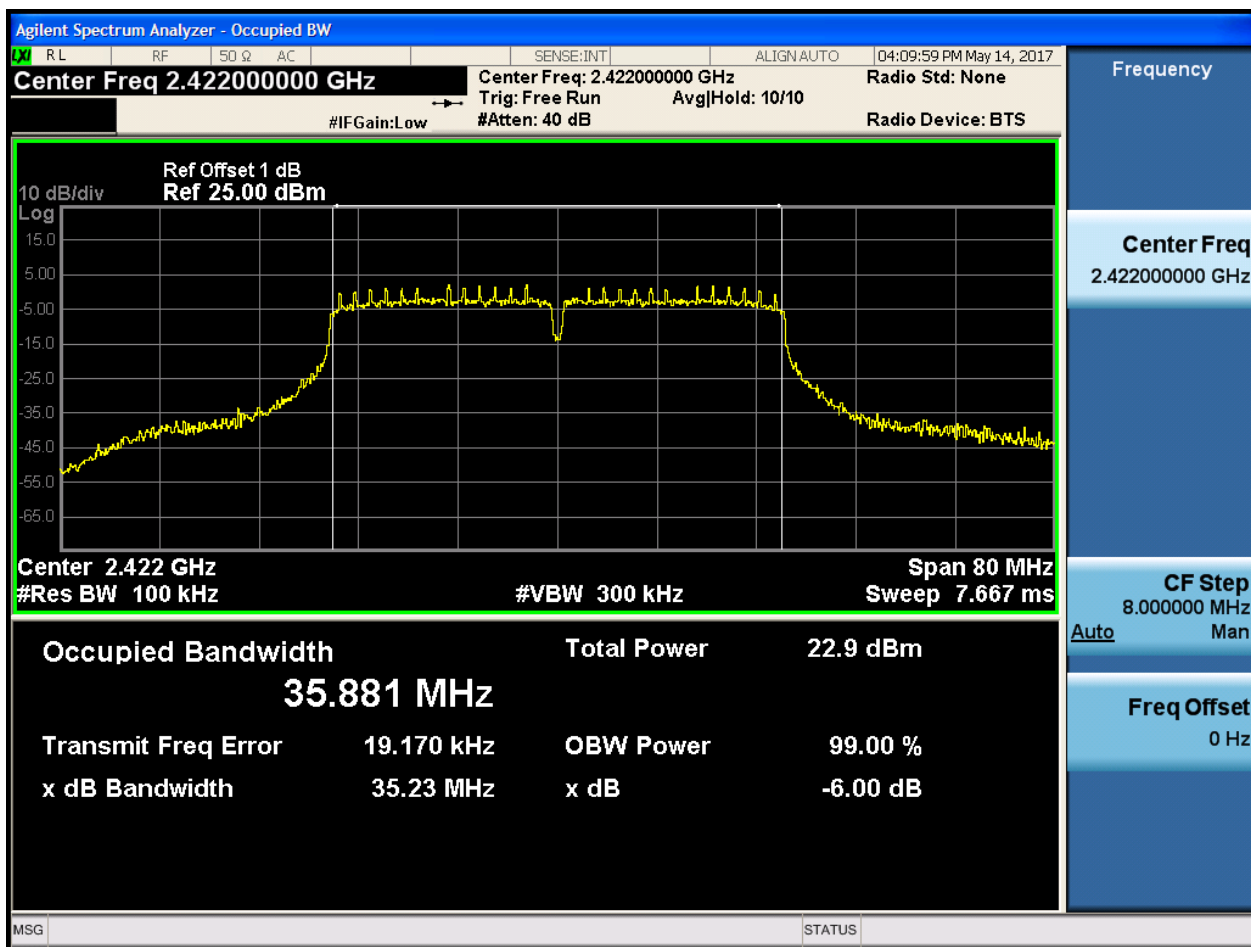


2.9 11N20_H@Ant 1



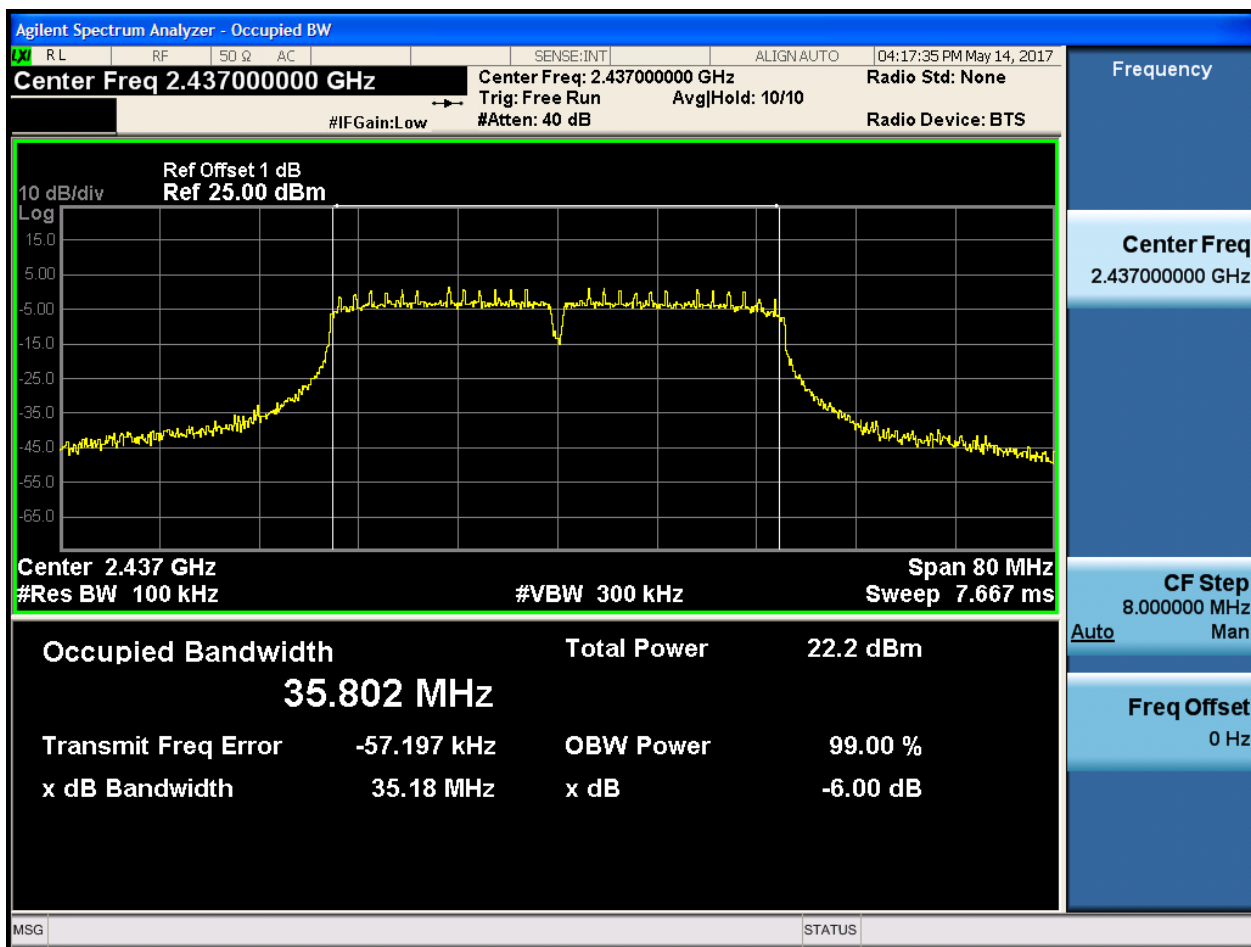


2.10 11N40_L@Ant 1



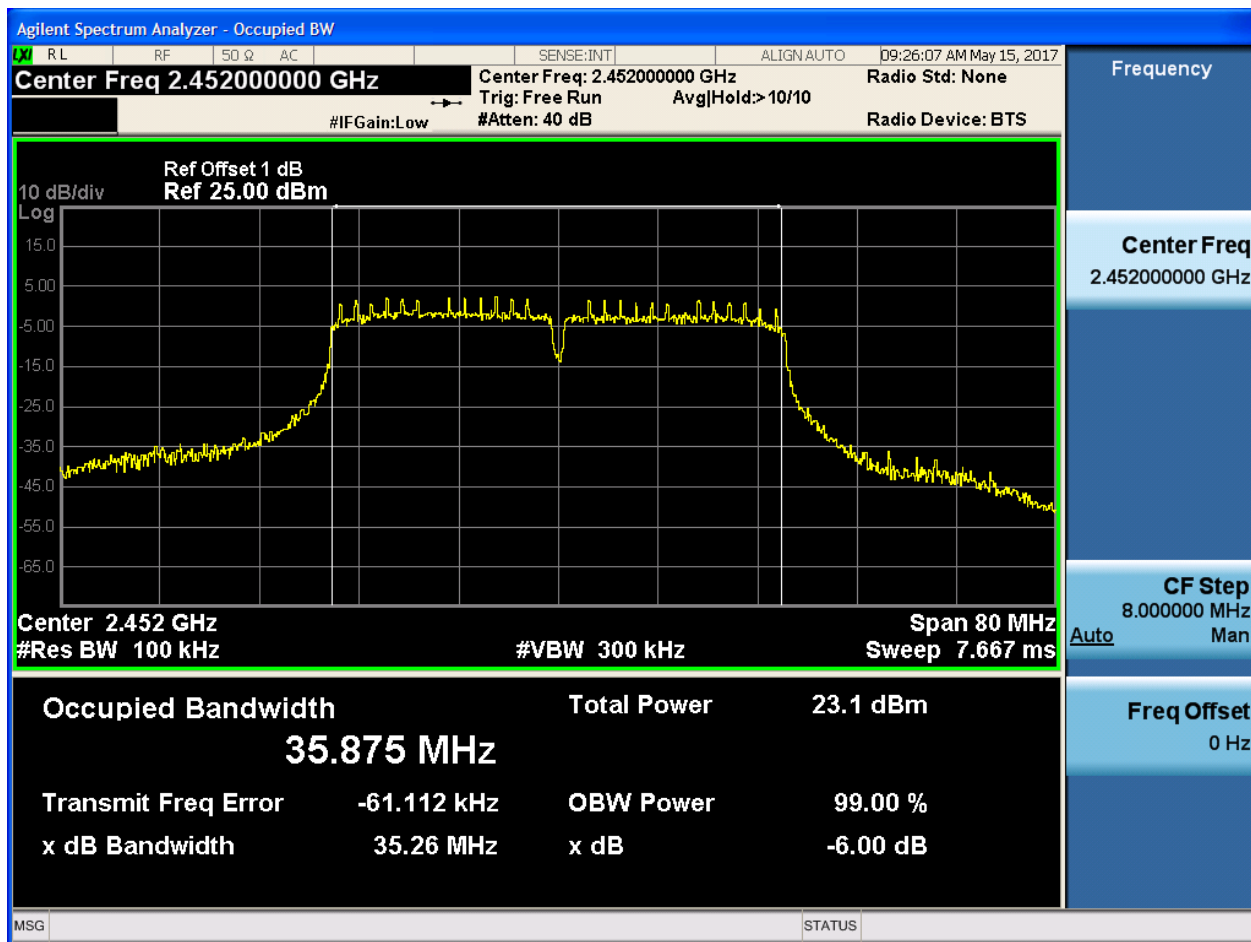


2.11 11N40_M@Ant 1





2.12 11N40_H@Ant 1



Appendix B: Occupied Bandwidth

For measurements on smart antenna systems (devices with multiple transmit chains), the test is performed at each chain, and used as respective results for each chain.

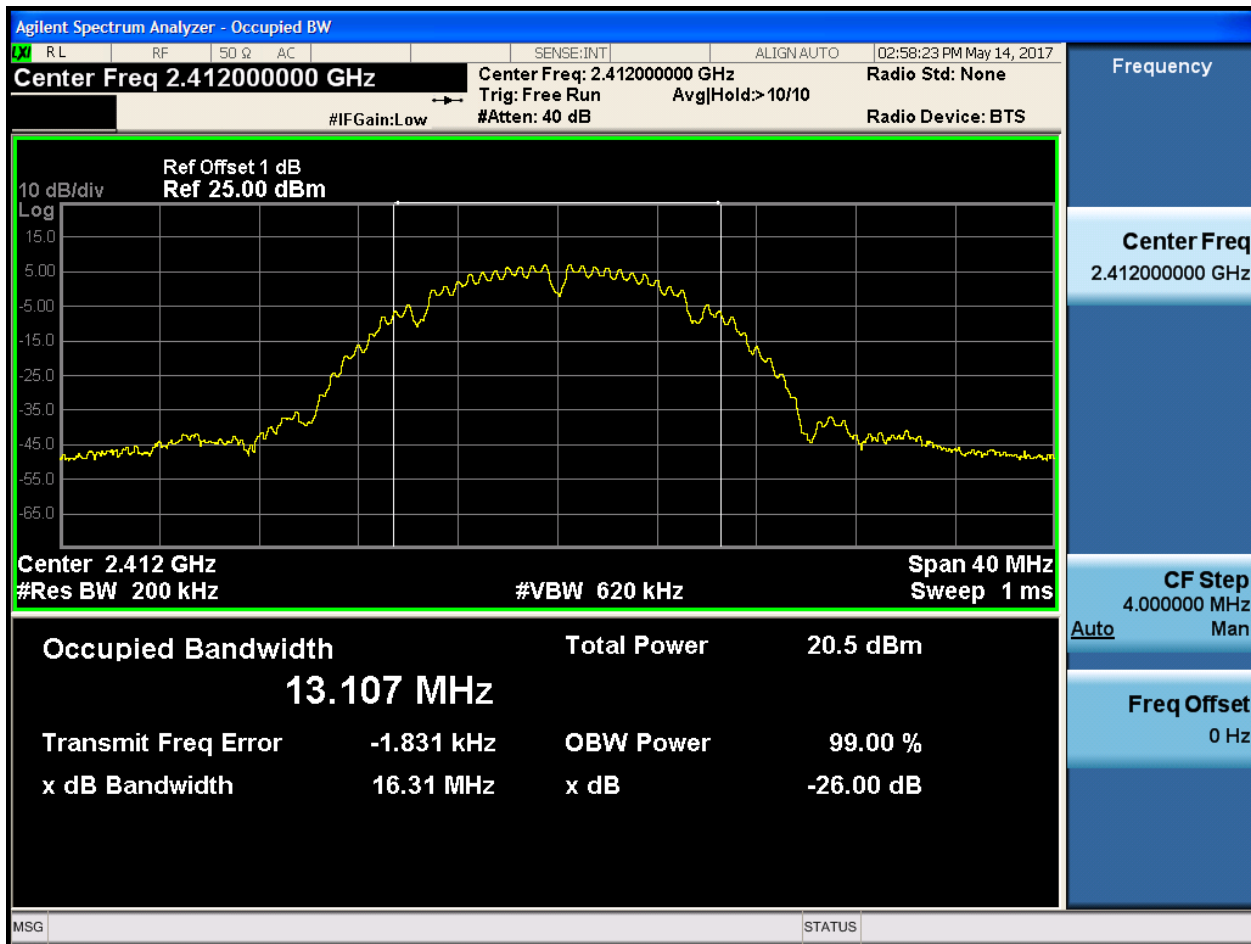
Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	Occupied Bandwidth [MHz]	Verdict
11B	L	2412	Ant 1	13.11	pass
11B	M	2437	Ant 1	13.05	pass
11B	H	2462	Ant 1	13.04	pass
11G	L	2412	Ant 1	16.81	pass
11G	M	2437	Ant 1	16.76	pass
11G	H	2462	Ant 1	16.79	pass
11N20	L	2412	Ant 1	17.87	pass
11N20	M	2437	Ant 1	17.87	pass
11N20	H	2462	Ant 1	17.84	pass
11N40	L	2422	Ant 1	36.15	pass
11N40	M	2437	Ant 1	36.07	pass
11N40	H	2452	Ant 1	36.15	pass



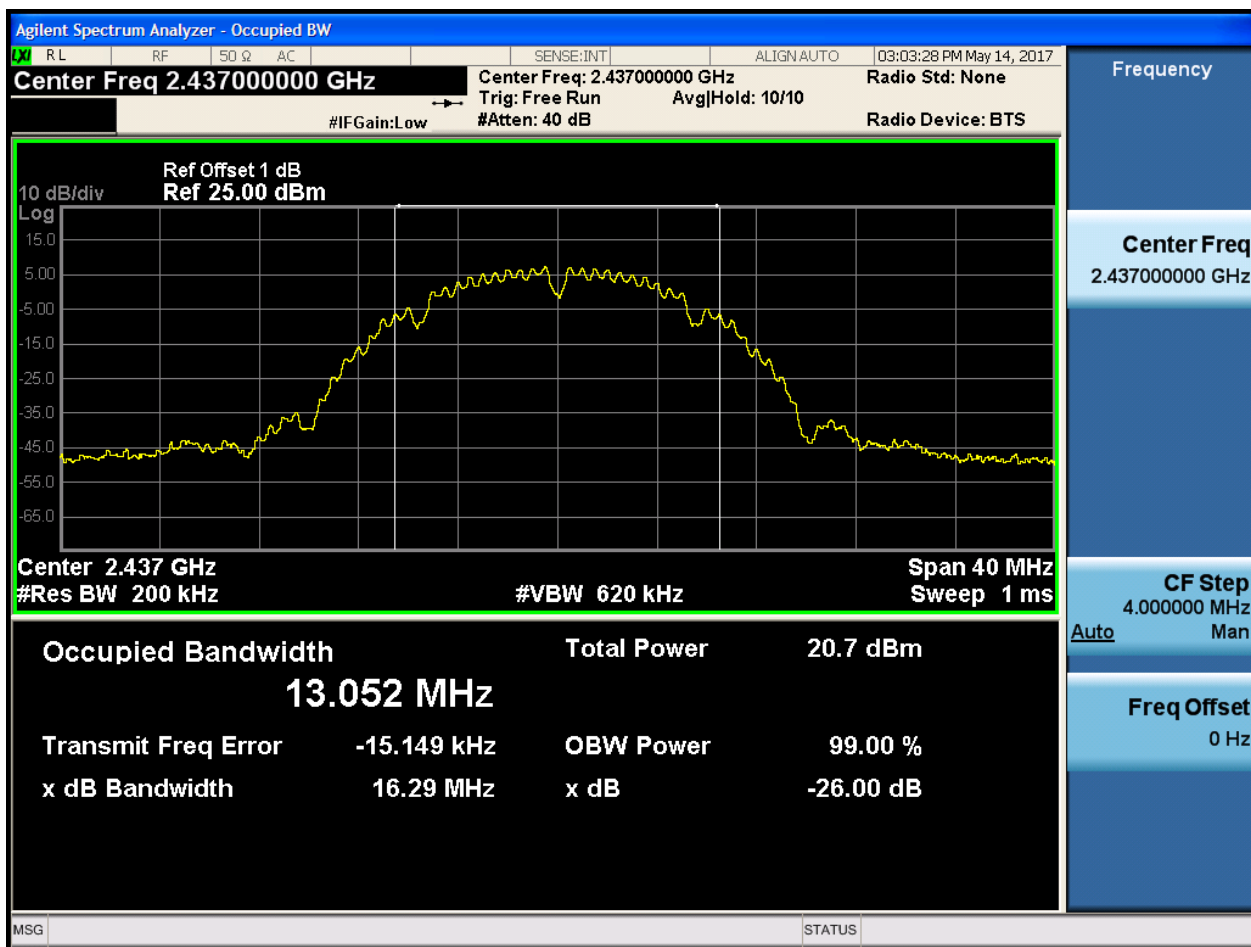
Part II - Test Plots

2.1 11B_L@Ant 1



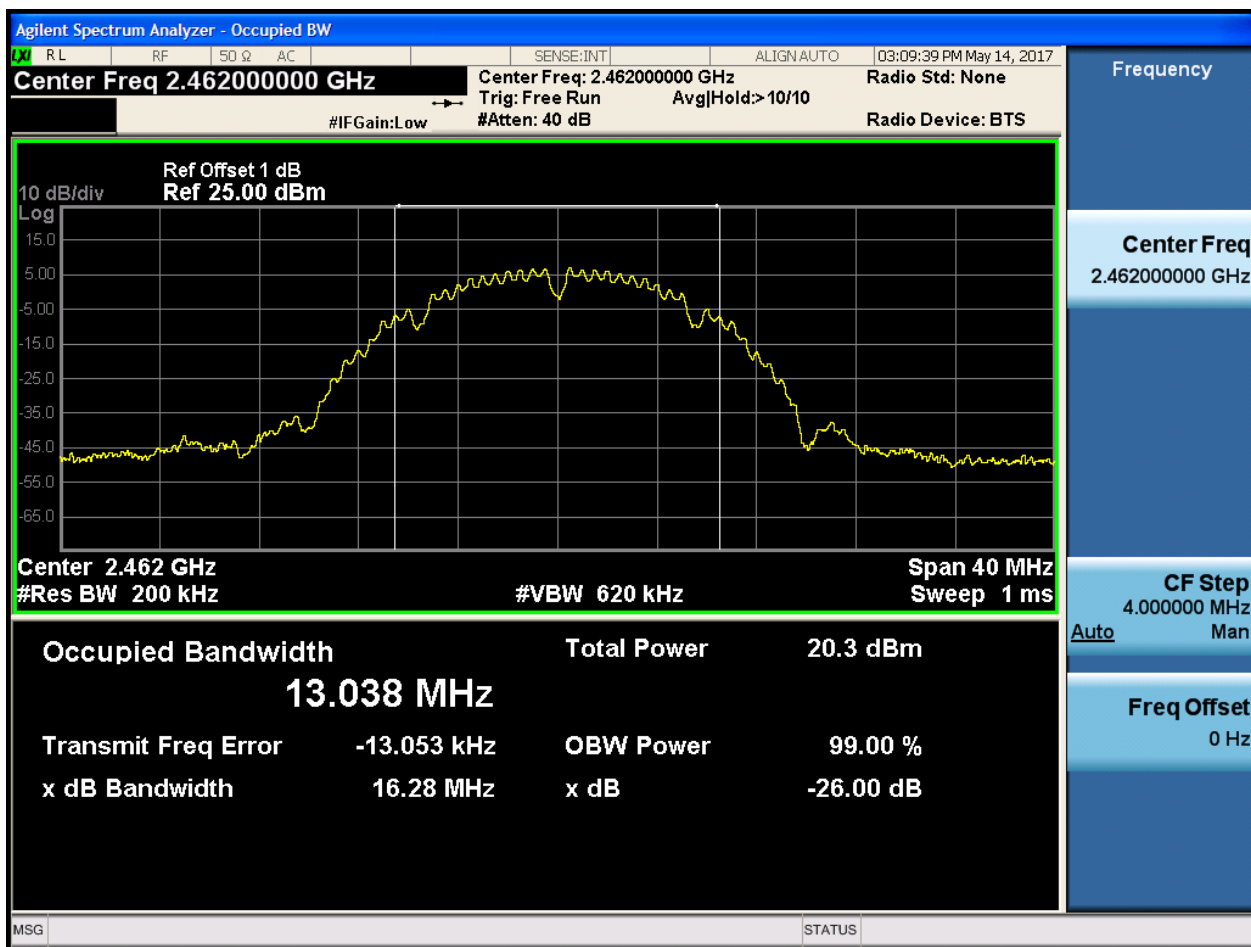


2.2 11B_M@Ant 1



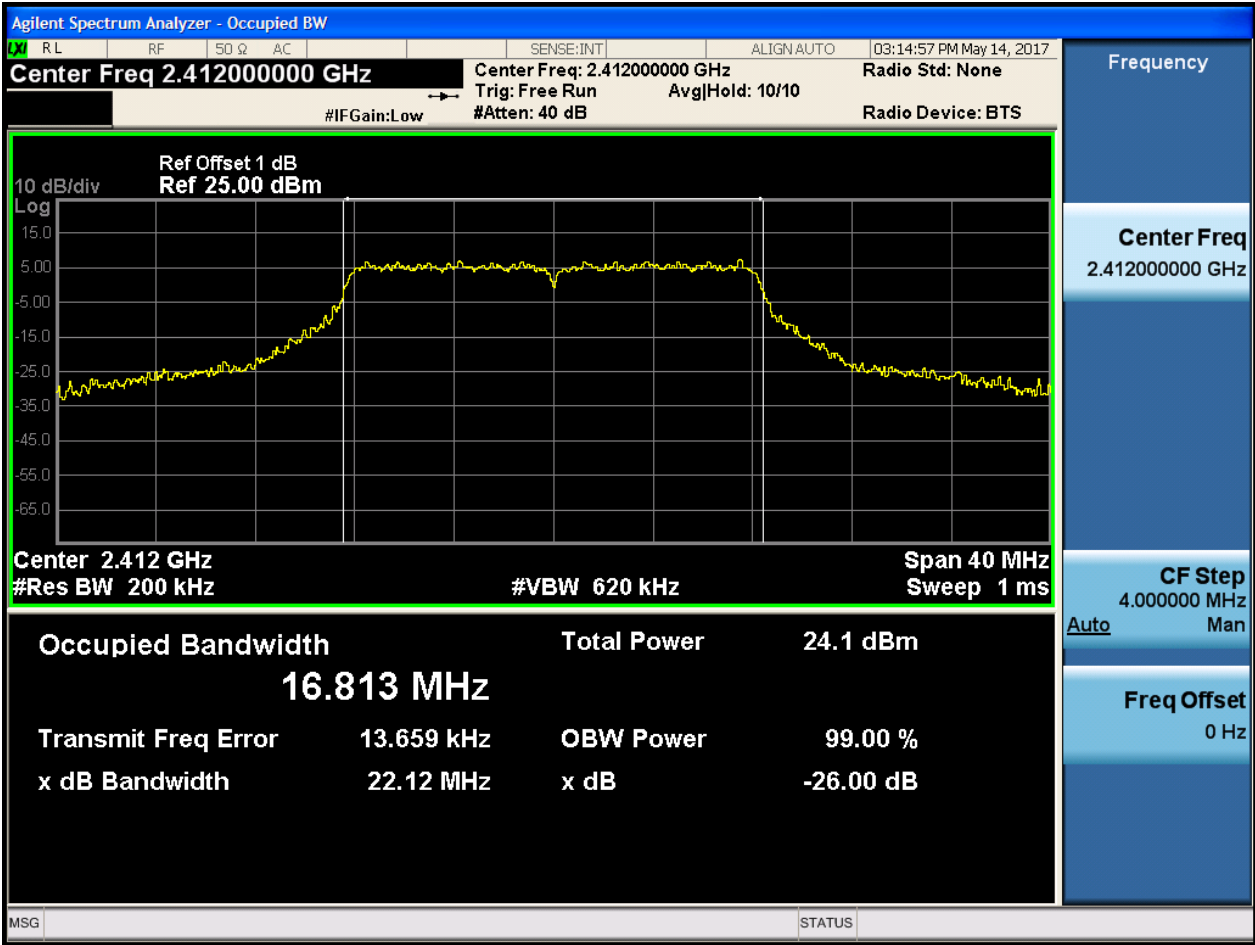


2.3 11B_H@Ant 1



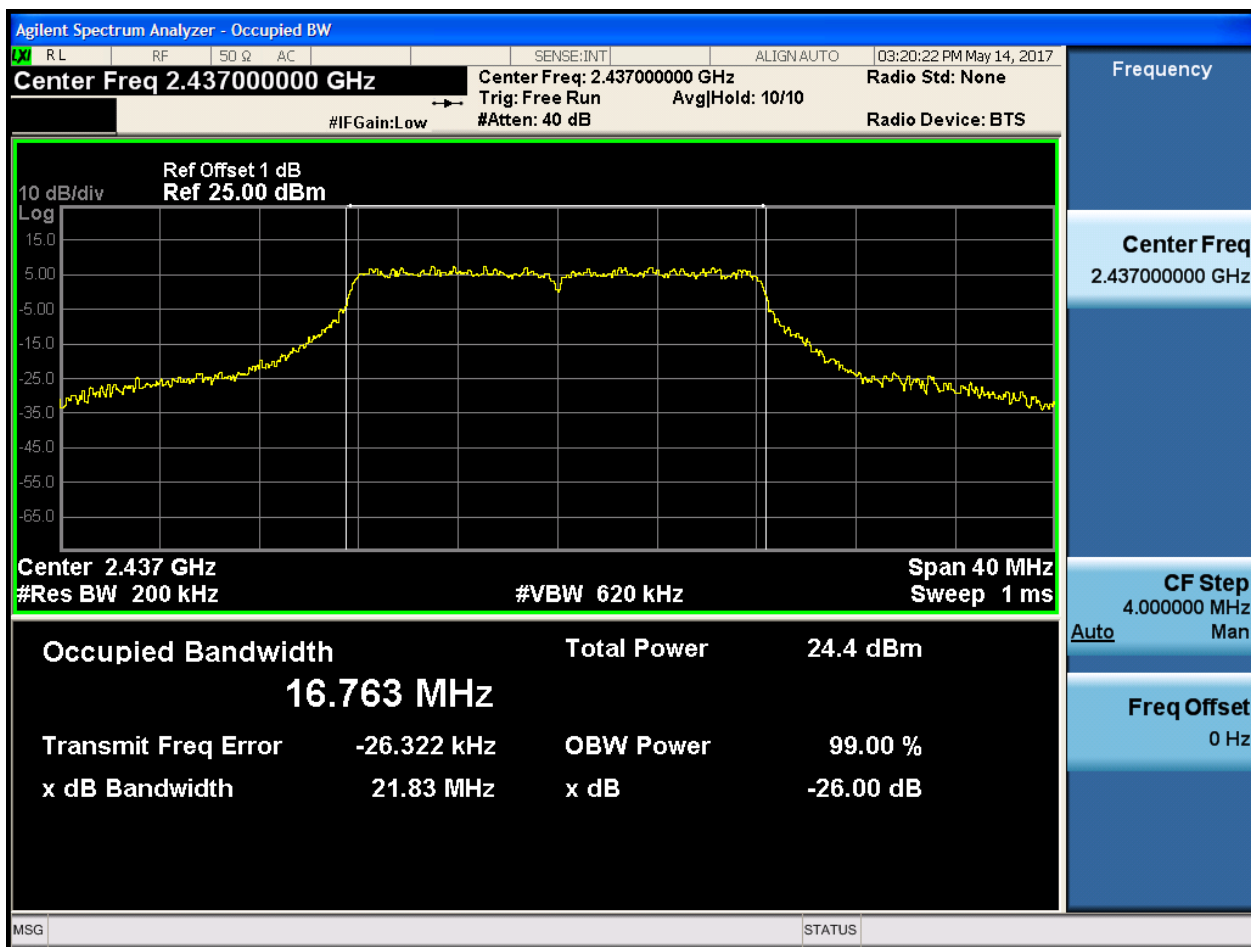


2.4 11G_L@Ant 1



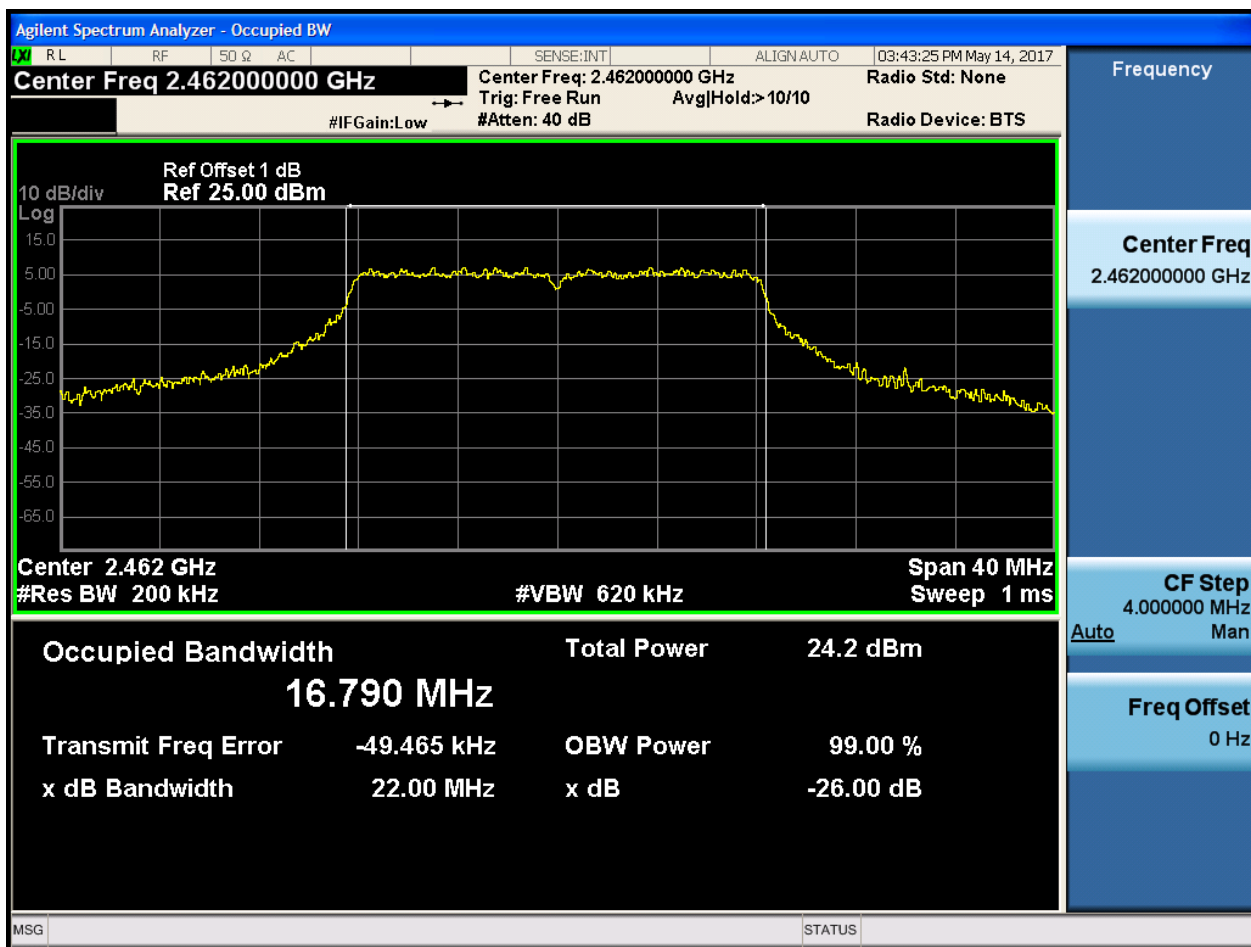


2.5 11G_M@Ant 1



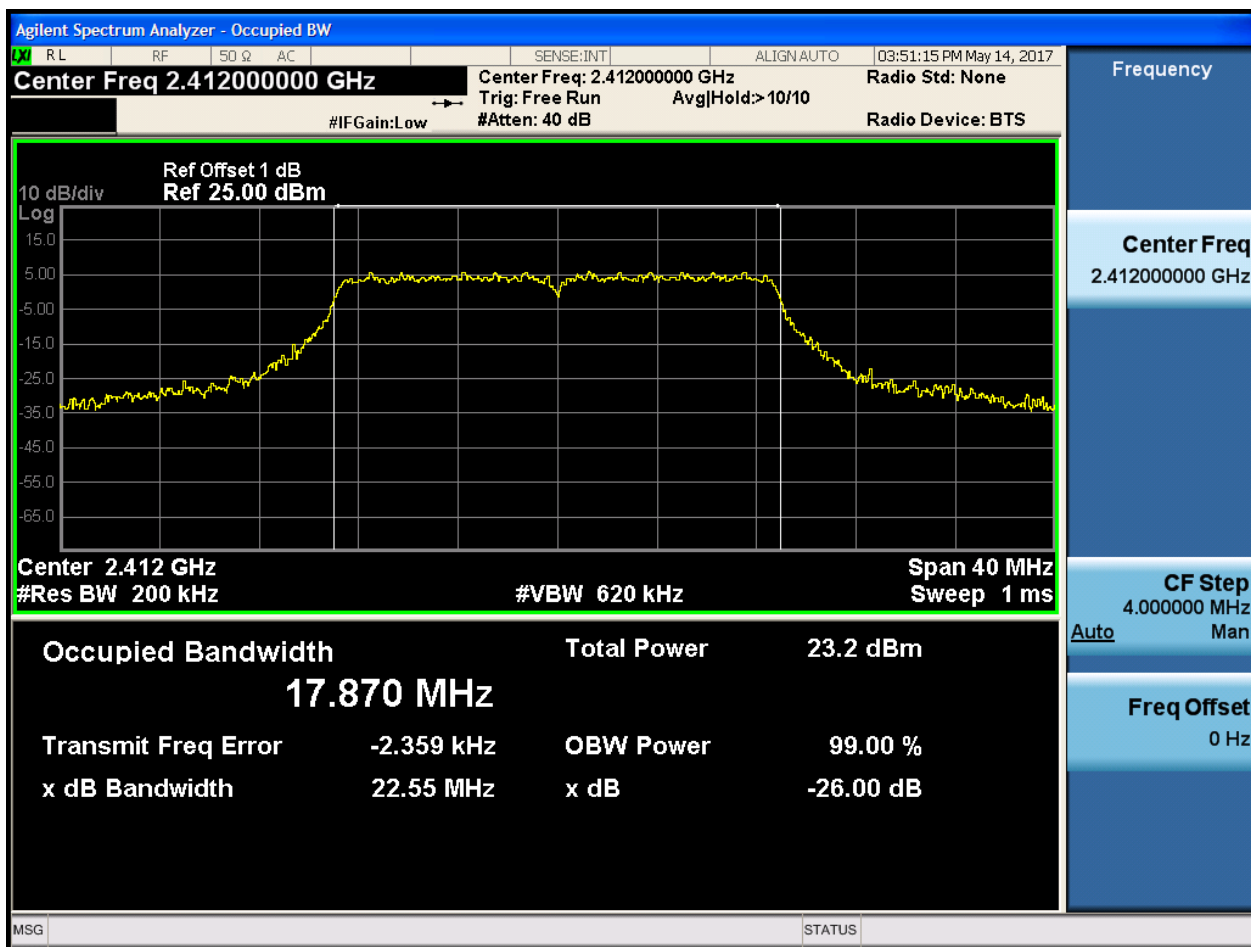


2.6 11G_H@Ant 1



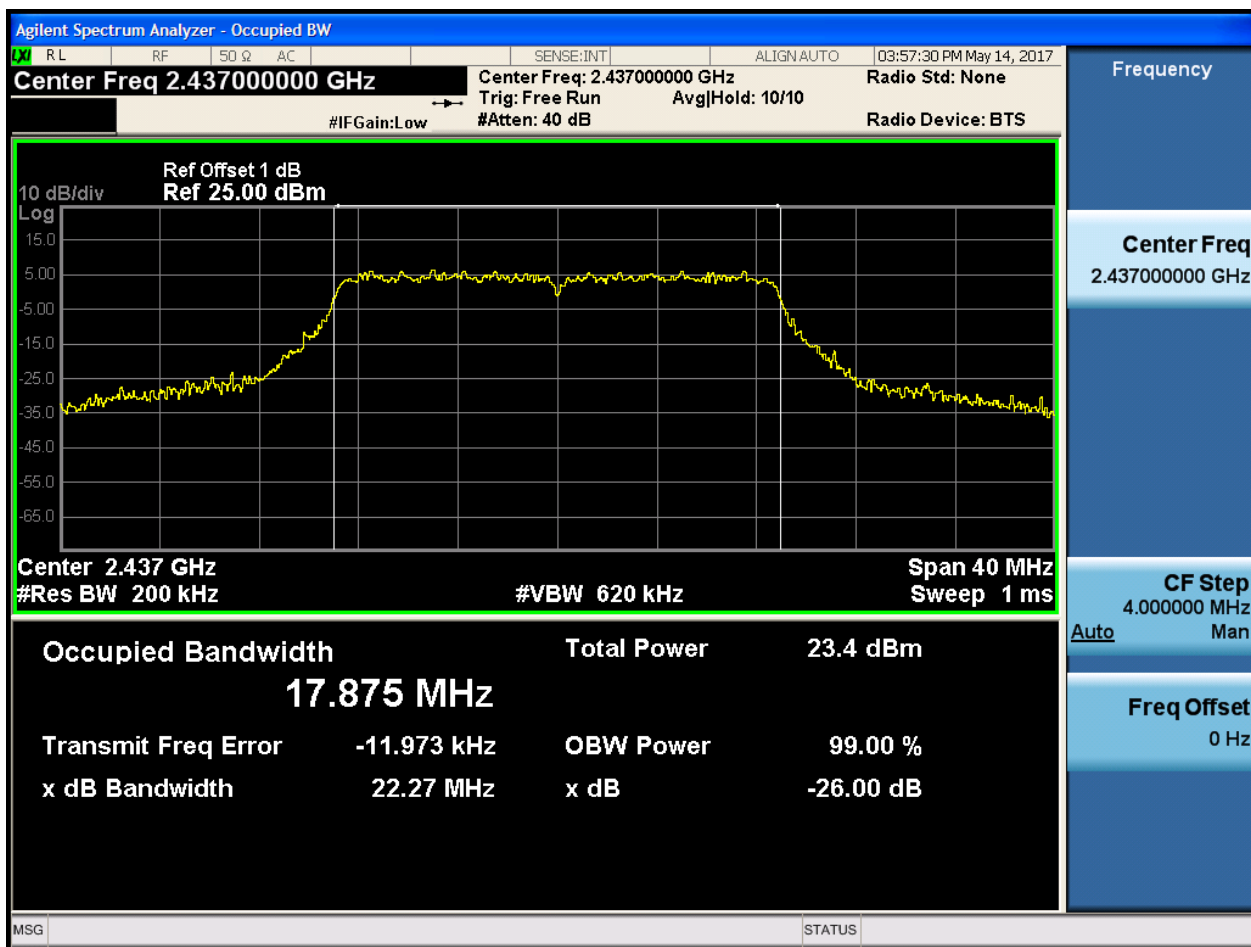


2.7 11N20_L@Ant 1



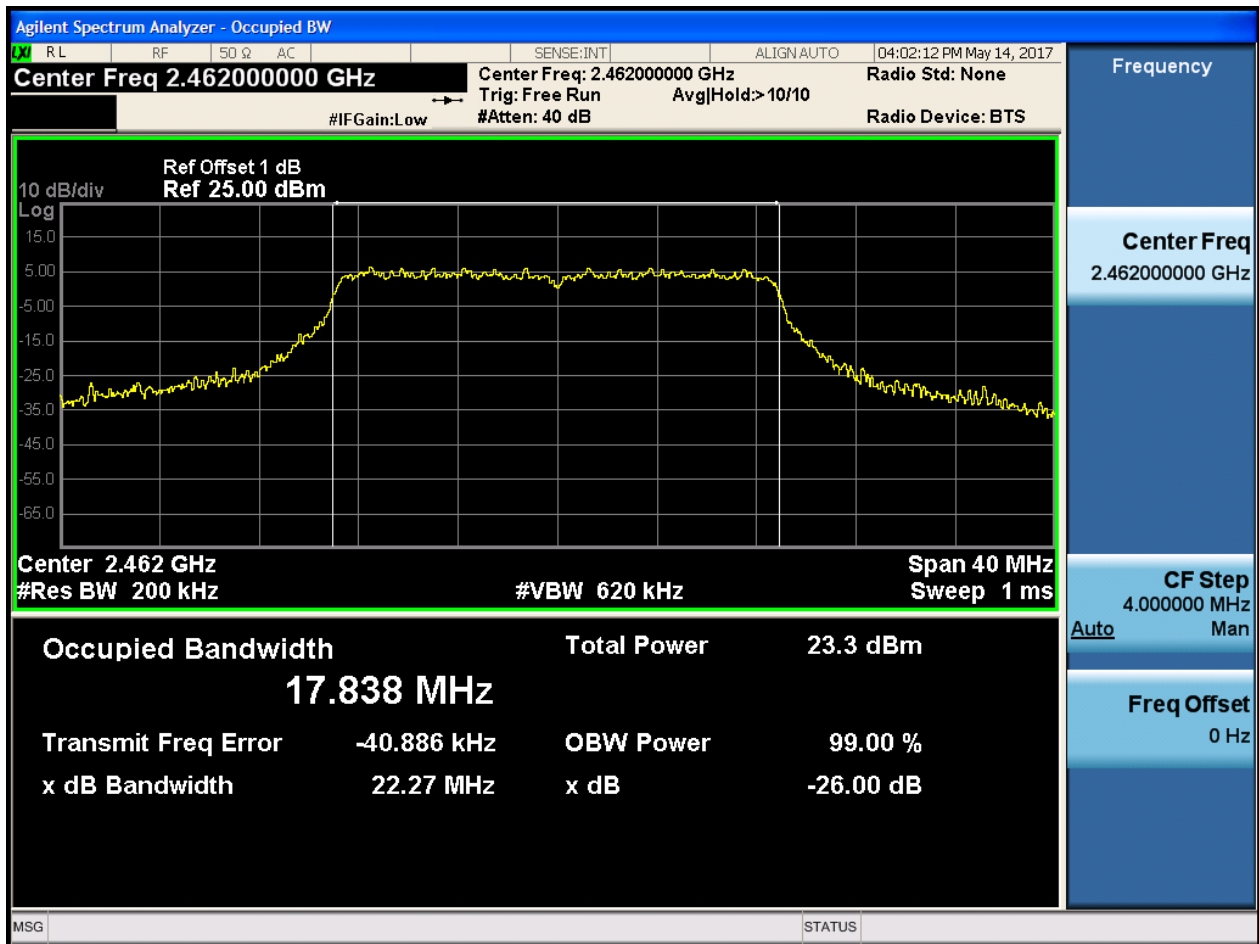


2.8 11N20_M@Ant 1



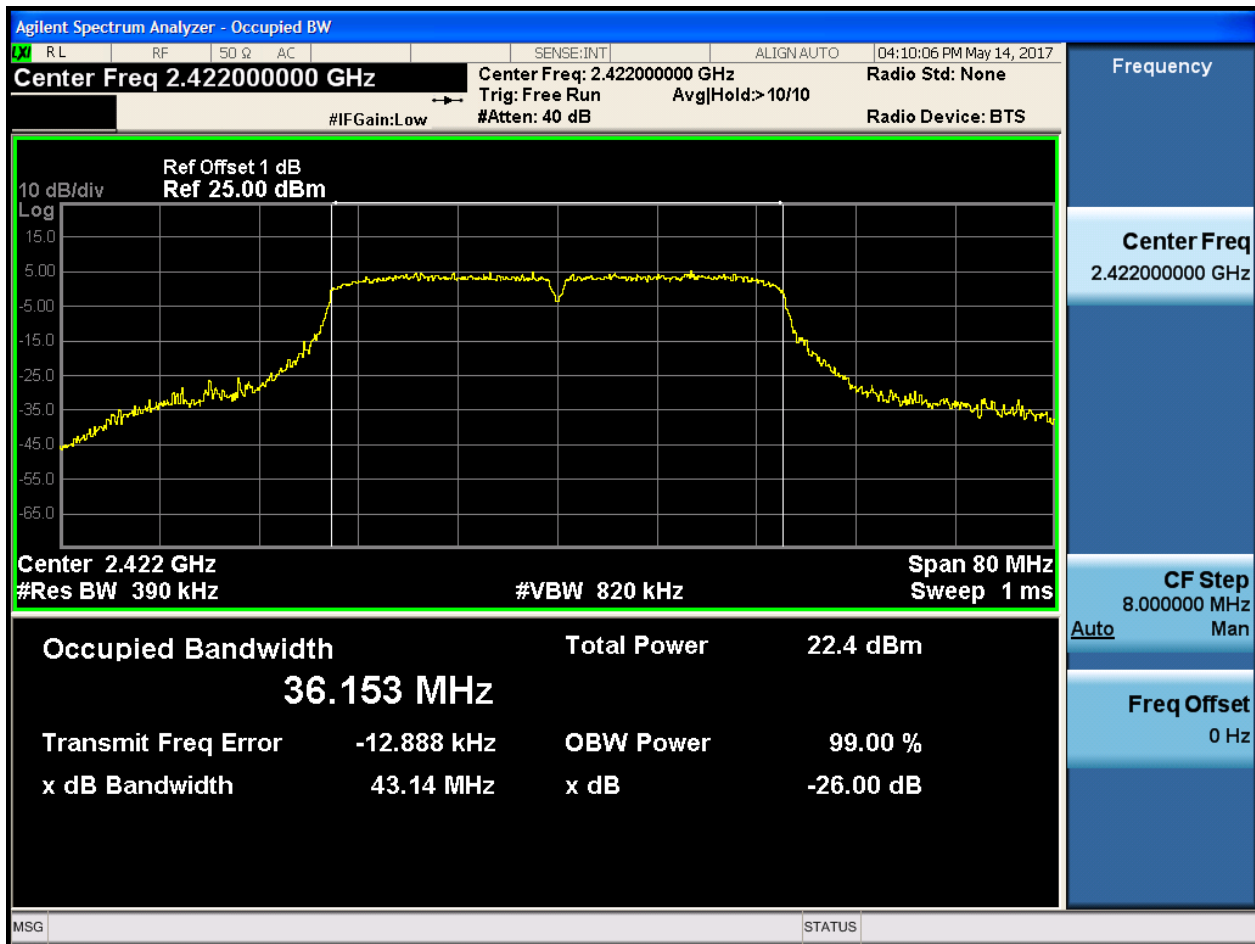


2.9 11N20_H@Ant 1



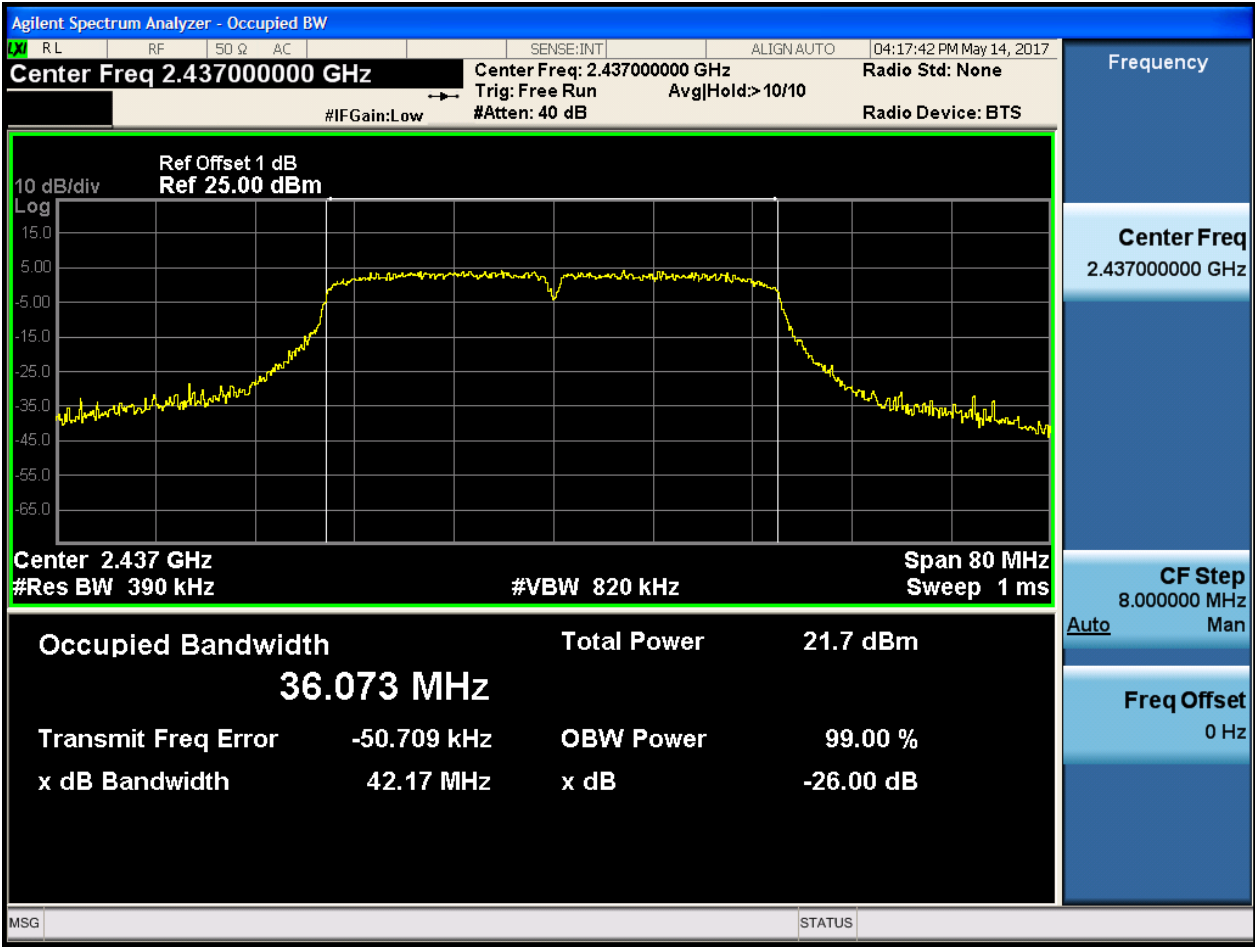


2.10 11N40_L@Ant 1



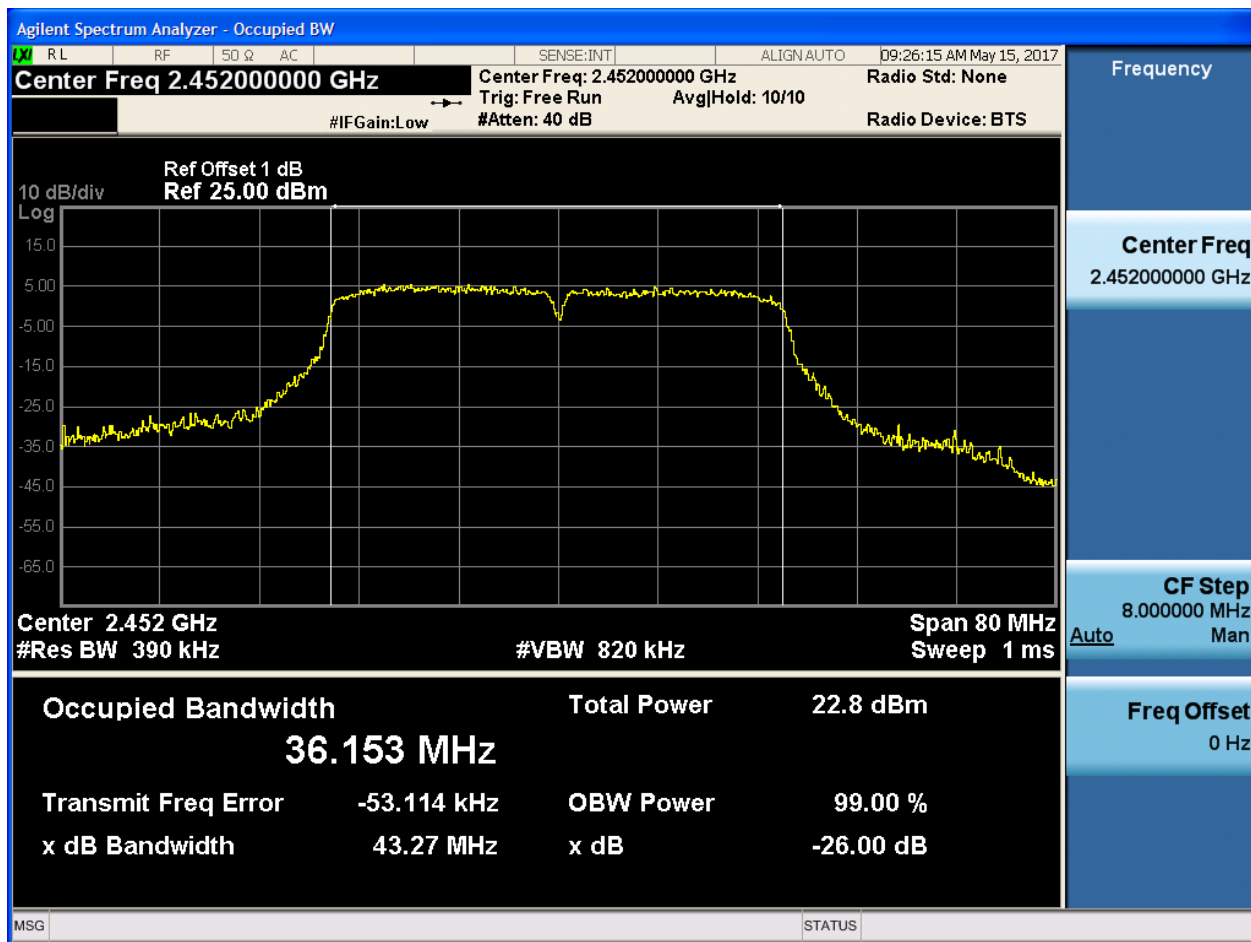


2.11 11N40_M@Ant 1





2.12 11N40_H@Ant 1



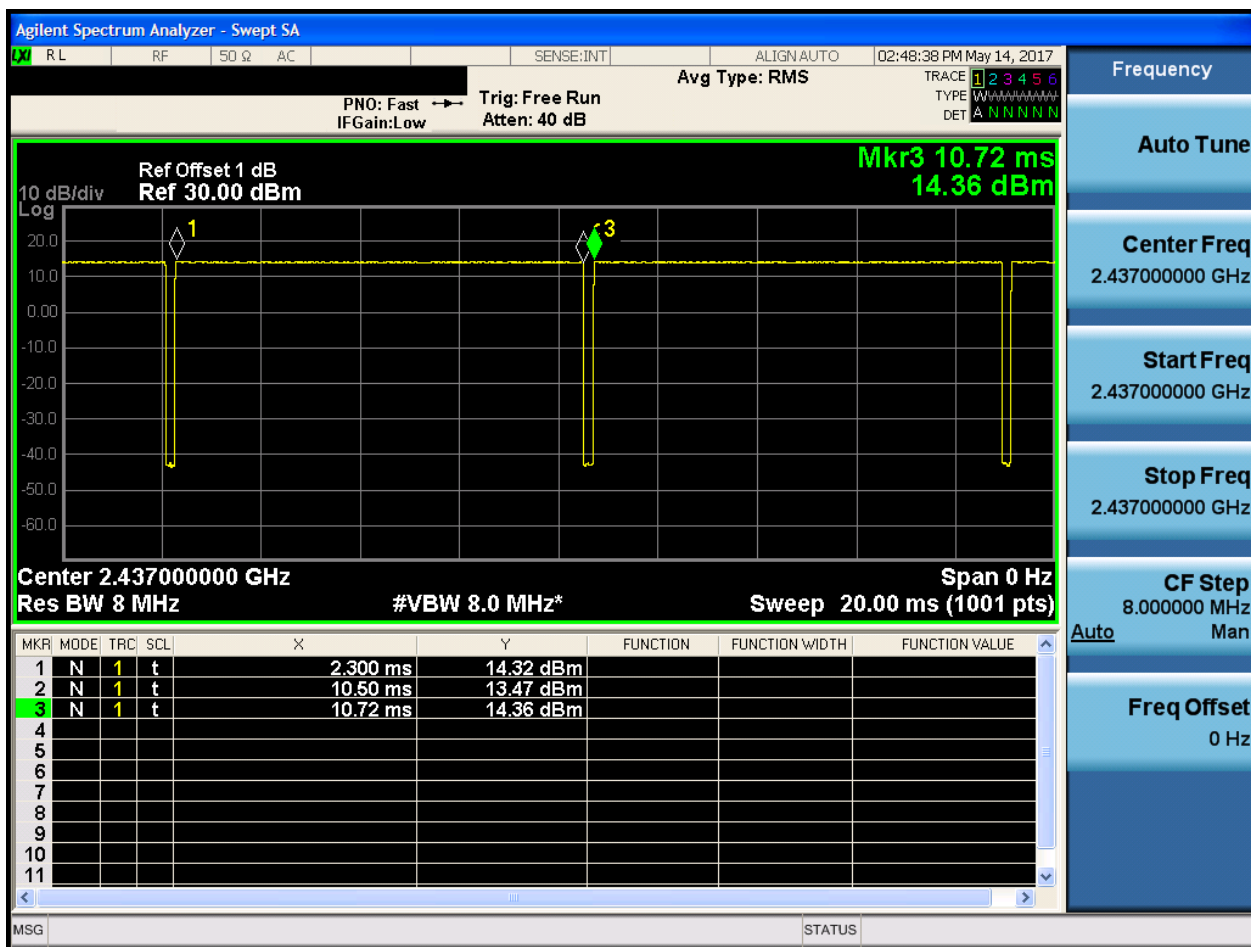
Appendix C: Duty Cycle

Part I - Test Results

Test Mode	TX Freq. [MHz]	Duty cycle [%]
11B	CH1,CH6,CH11	97.4
11G	CH1,CH6,CH11	86.9
11N20SISO	CH1,CH6,CH11	87.3
11N40SISO	CH3,CH6,CH9	75.8

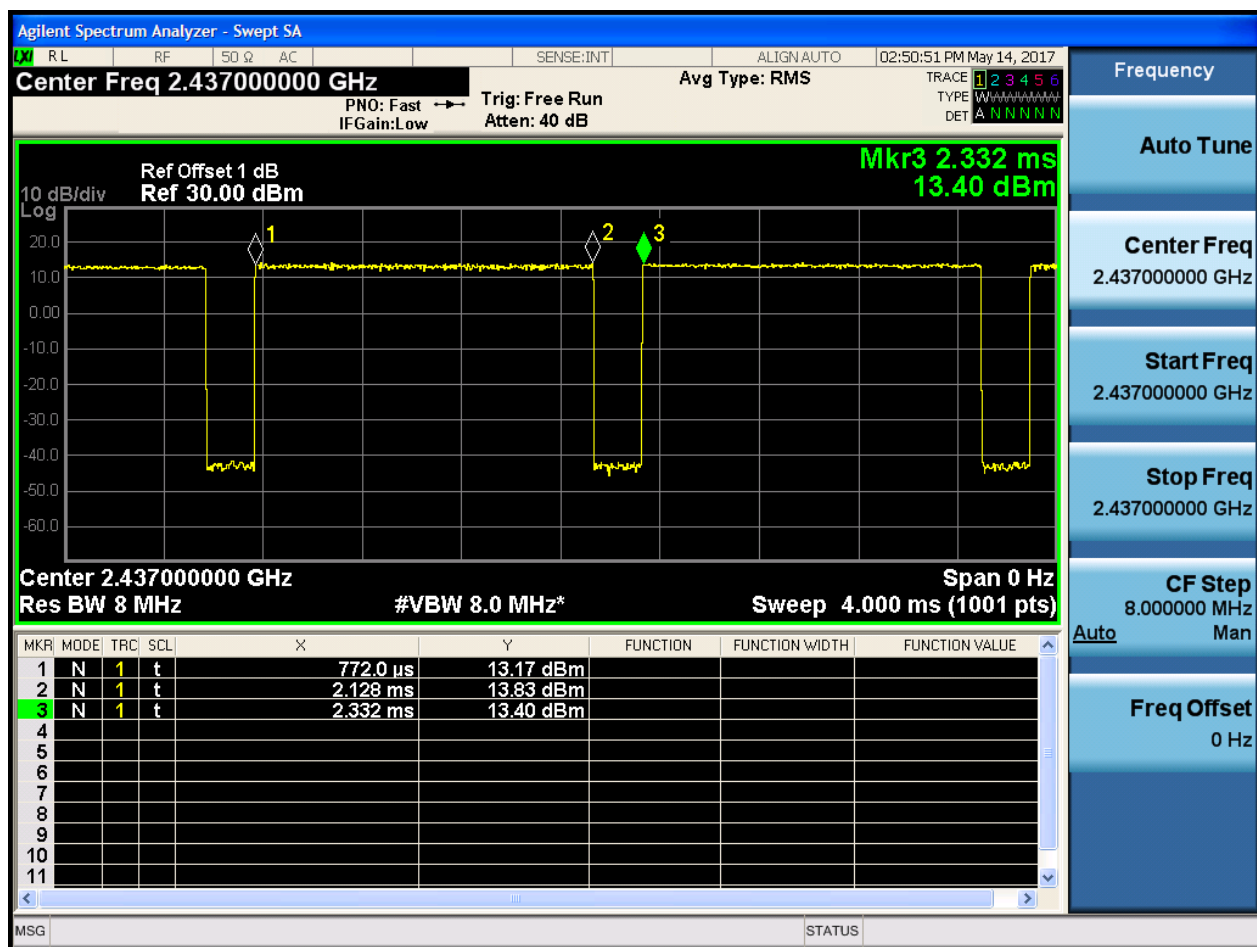
Part II - Test Plots

11B ANT1



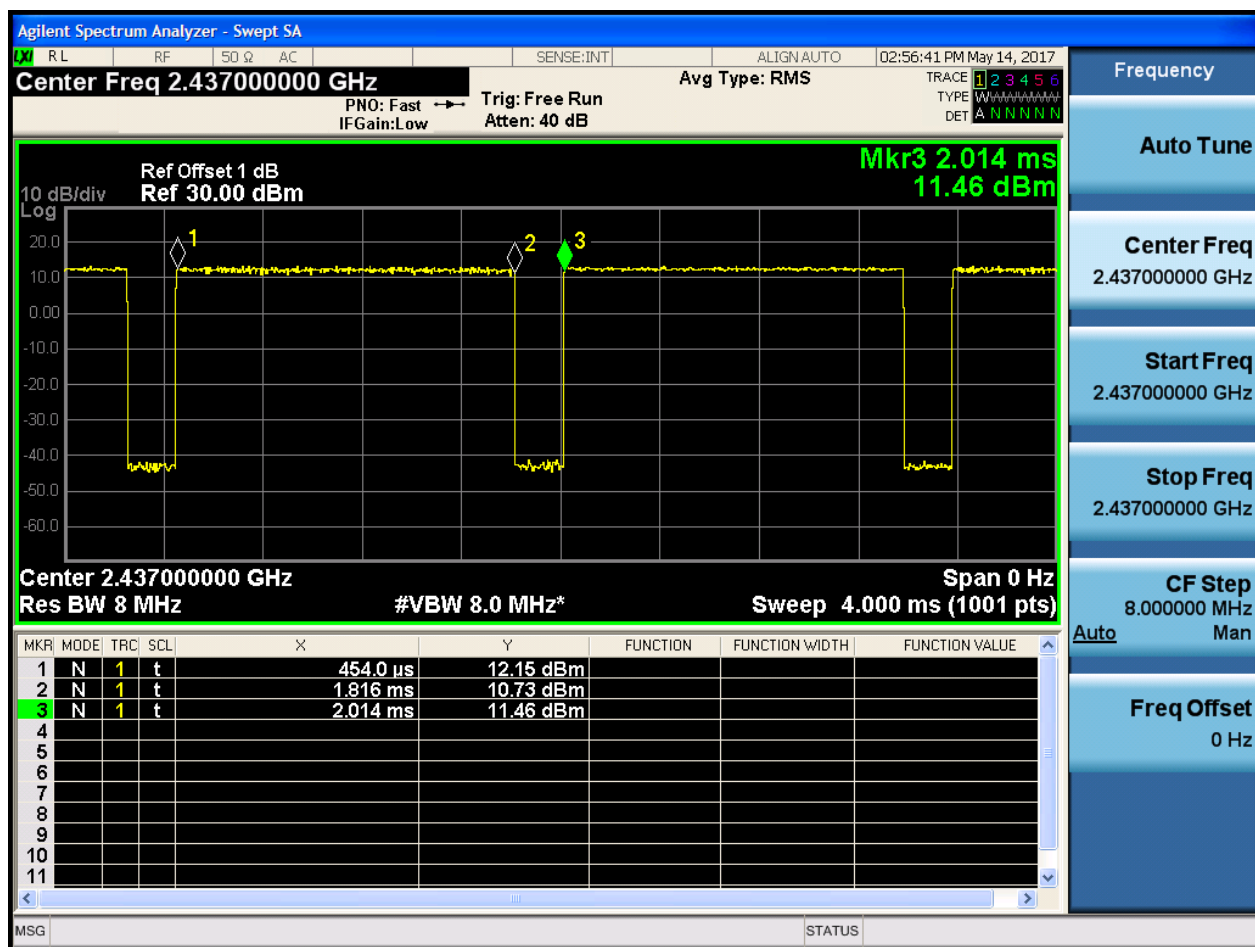


11G_ANT1



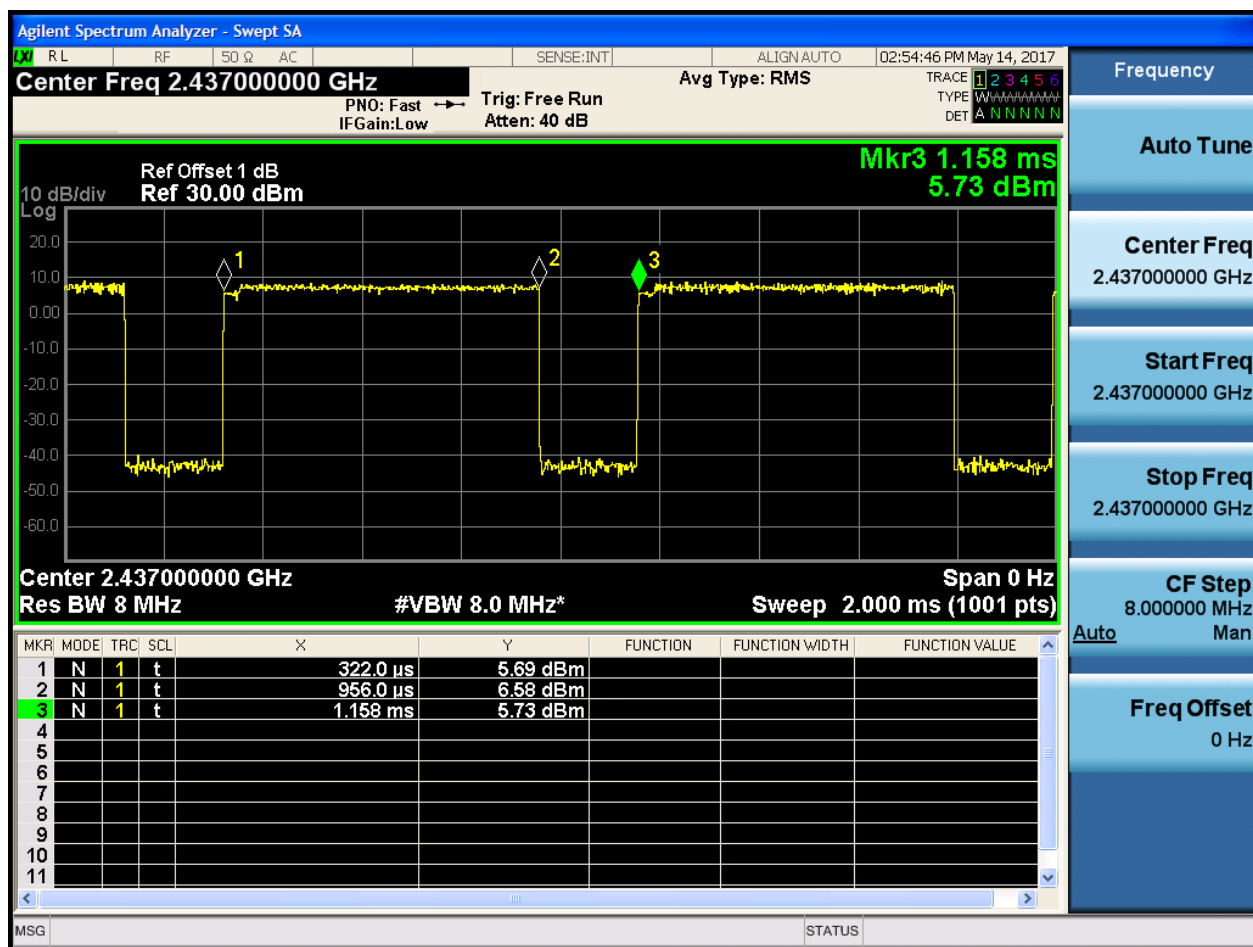


11N20SISO_ANT1





11N40SISO_ANT1



Appendix C: Maximum Conducted Average Output Power

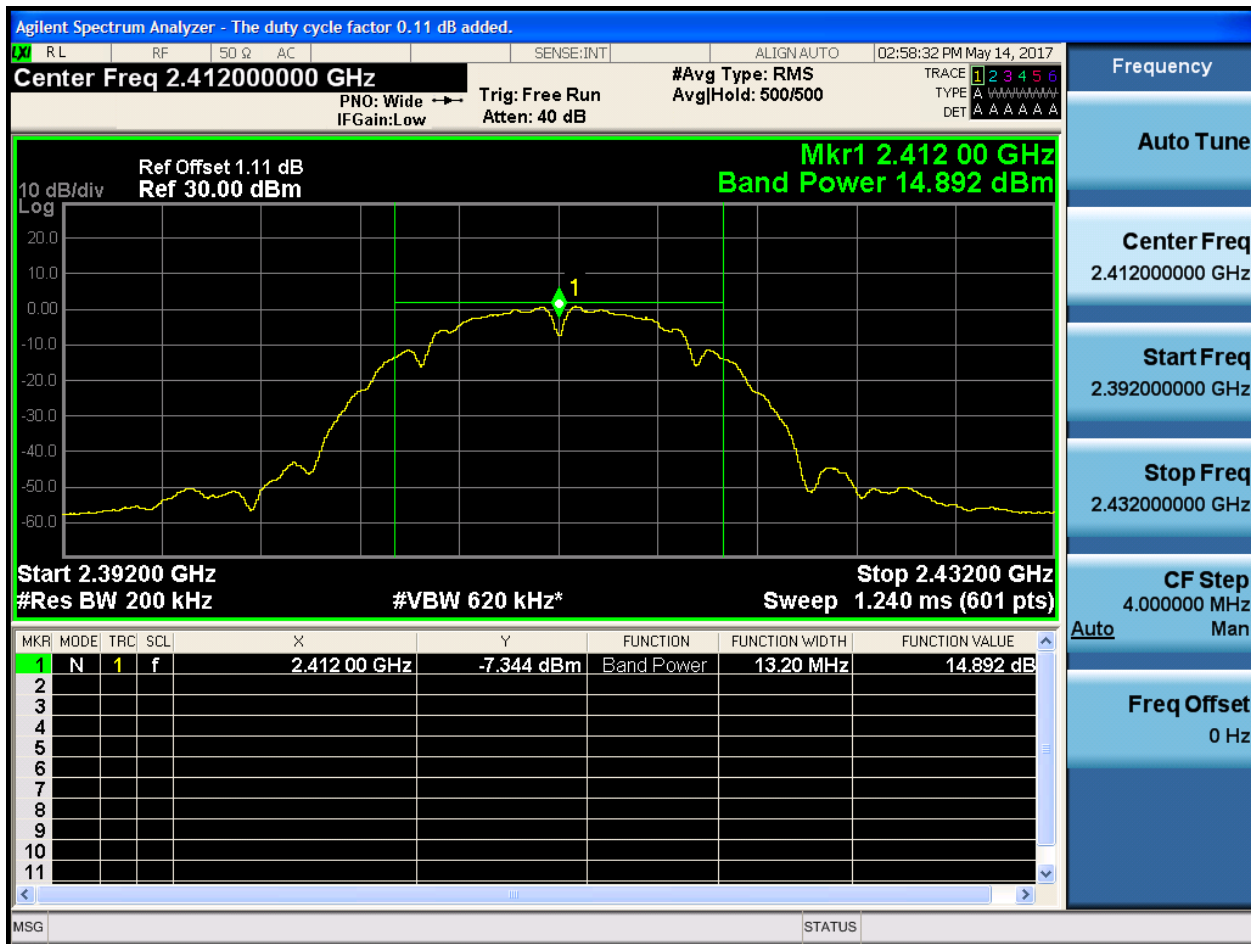
Part I - Test Results

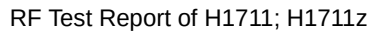
Test Mode	Test Channel	Frequency[MHz]	Ant	Power[dBm]	Verdict
11B	L	2412	Ant 1	14.89	pass
11B	M	2437	Ant 1	15.12	pass
11B	H	2462	Ant 1	14.68	pass
11G	L	2412	Ant 1	17.17	pass
11G	M	2437	Ant 1	17.29	pass
11G	H	2462	Ant 1	17.14	pass
11N20	L	2412	Ant 1	16.06	pass
11N20	M	2437	Ant 1	16.21	pass
11N20	H	2462	Ant 1	16.10	pass
11N40	L	2422	Ant 1	15.44	pass
11N40	M	2437	Ant 1	14.71	pass
11N40	H	2452	Ant 1	15.63	pass



Part II - Test Plots

2.1 11B_L@Ant 1





Agilent Spectrum Analyzer - The duty cycle factor 0.11 dB added.

Center Freq 2.43700000 GHz

#Avg Type: RMS
Avg/Hold: 500/500

03:03:37 PM May 14, 2017

TRACE 1 2 3 4 5 6
TYPE A W W W W W W W W
DET A A A A A A

PNO: Wide → Trig: Free Run
IFGain: Low Atten: 40 dB

Ref Offset 1.11 dB
Ref 30.00 dBm

Mkr1 2.437 00 GHz
Band Power 15.122 dBm

Start 2.41700 GHz
#Res BW 200 kHz

Stop 2.45700 GHz
Sweep 1.240 ms (601 pts)

#VBW 620 kHz*

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.437 00 GHz	-7.369 dBm	Band Power	13.07 MHz	15.122 dB
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								

MSG STATUS

Frequency

Auto Tune

Center Freq
2.43700000 GHz

Start Freq
2.41700000 GHz

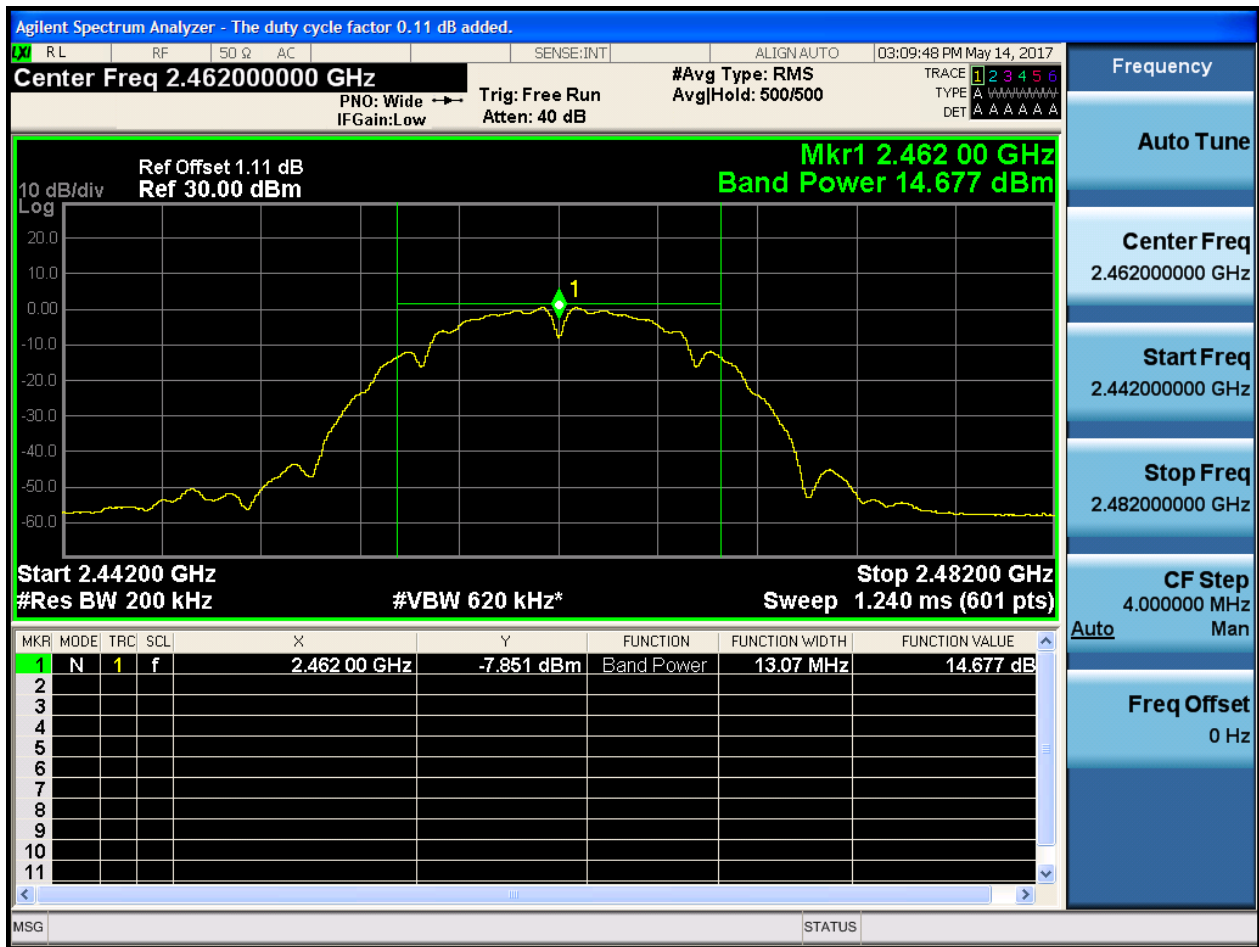
Stop Freq
2.45700000 GHz

CF Step
4.000000 MHz
Man

Freq Offset
0 Hz

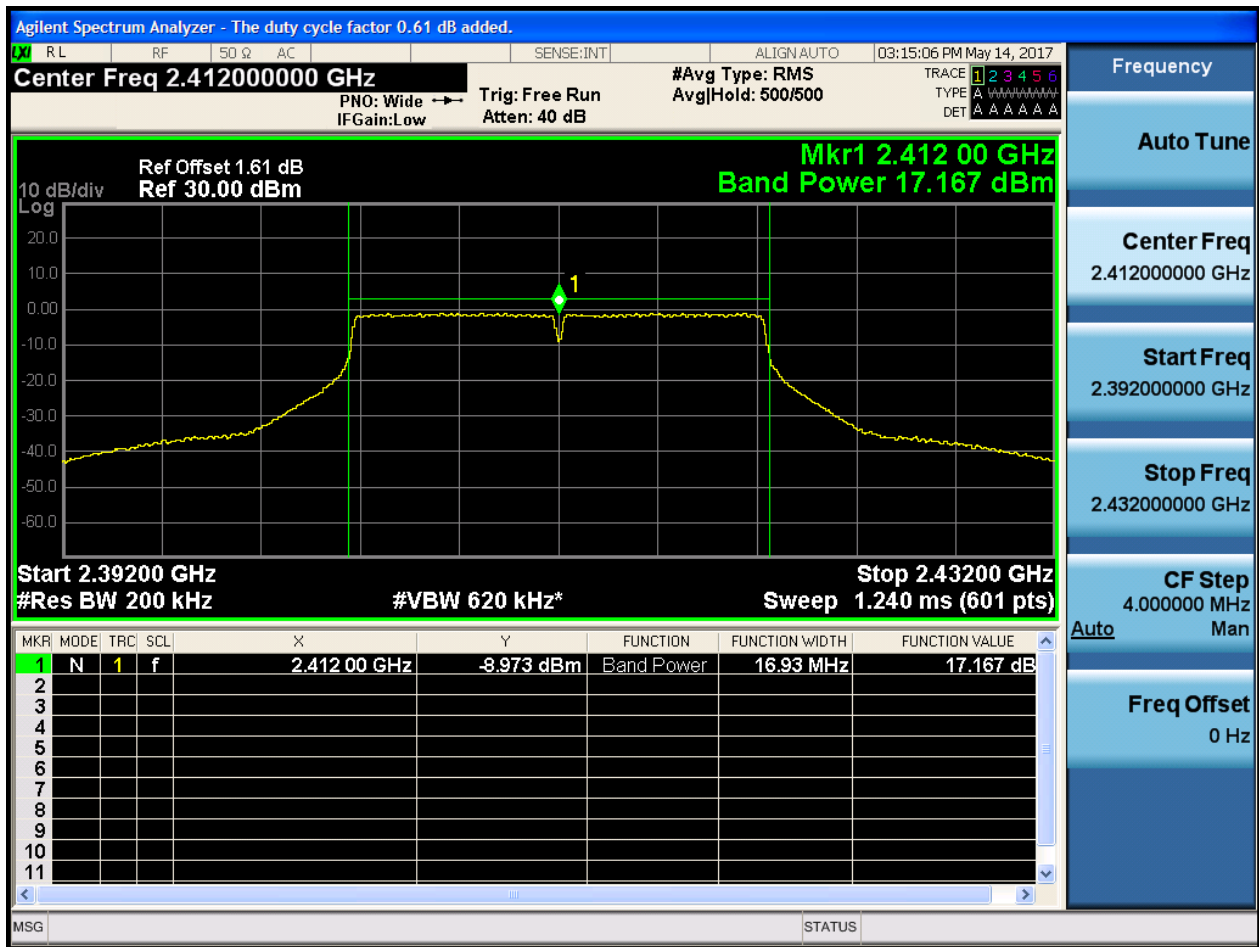


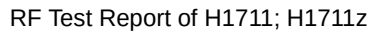
2.3 11B_H@Ant 1





2.4 11G_L@Ant 1





Agilent Spectrum Analyzer - The duty cycle factor 0.61 dB added.

Center Freq 2.437000000 GHz

#Avg Type: RMS
Avg/Hold: 500/500

03:20:31 PM May 14, 2017

TRACE 1 2 3 4 5 6
TYPE A A A A A A
DET A A A A A A

PNO: Wide → Trig: Free Run
IFGain: Low Atten: 40 dB

Ref Offset 1.61 dB
Ref 30.00 dBm

Mkr1 2.437 00 GHz
Band Power 17.285 dBm

Start 2.41700 GHz
#Res BW 200 kHz

Stop 2.45700 GHz
Sweep 1.240 ms (601 pts)

#VBW 620 kHz*

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.437 00 GHz	-8.897 dBm	Band Power	16.80 MHz	17.285 dB
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								

MSG STATUS

Frequency

Auto Tune

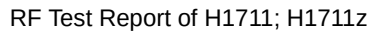
Center Freq
2.437000000 GHz

Start Freq
2.417000000 GHz

Stop Freq
2.457000000 GHz

CF Step
4.000000 MHz
Man

Freq Offset
0 Hz



Agilent Spectrum Analyzer - The duty cycle factor 0.61 dB added.

Center Freq 2.46200000 GHz

Ref Offset 1.61 dB
Ref 30.00 dBm

Mkr1 2.462 00 GHz
Band Power 17.136 dBm

Start 2.44200 GHz
#Res BW 200 kHz

Stop 2.48200 GHz
Sweep 1.240 ms (601 pts)

#VBW 620 kHz*

Trig: Free Run
Atten: 40 dB

#Avg Type: RMS
Avg/Hold: 500/500

03:43:34 PM May 14, 2017

TRACE 1 2 3 4 5 6
TYPE A W W W W W W W W
DET A A A A A A

10 dB/div
Log

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.462 00 GHz	-8.812 dBm	Band Power	16.80 MHz	17.136 dB
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								

MSG STATUS

Frequency

Auto Tune

Center Freq
2.46200000 GHz

Start Freq
2.44200000 GHz

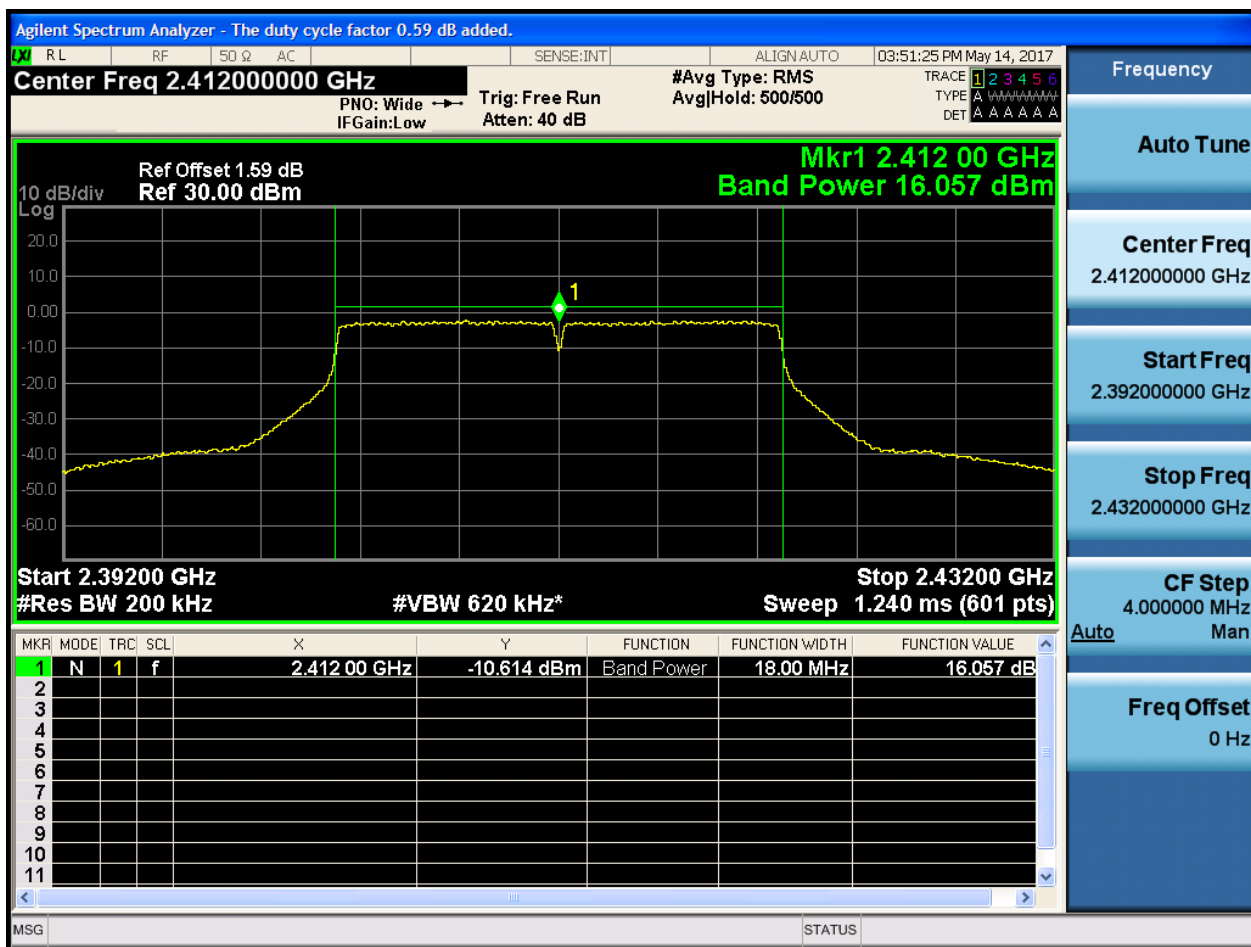
Stop Freq
2.48200000 GHz

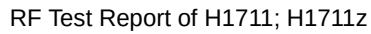
CF Step
4.000000 MHz
Man

Freq Offset
0 Hz



2.7 11N20_L@Ant 1





Agilent Spectrum Analyzer - The duty cycle factor 0.59 dB added.

Center Freq 2.43700000 GHz

Ref Offset 1.59 dB
Ref 30.00 dBm

Mkr1 2.437 00 GHz
Band Power 16.209 dBm

10 dB/div
Log

Start 2.41700 GHz
#Res BW 200 kHz

#VBW 620 kHz*

Stop 2.45700 GHz
Sweep 1.240 ms (601 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.437 00 GHz	-10.359 dBm	Band Power	18.00 MHz	16.209 dB
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								

Frequency

Auto Tune

Center Freq
2.43700000 GHz

Start Freq
2.41700000 GHz

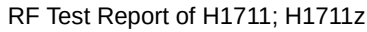
Stop Freq
2.45700000 GHz

CF Step
4.000000 MHz
Man

Freq Offset
0 Hz

MSG

STATUS



Agilent Spectrum Analyzer - The duty cycle factor 0.59 dB added.

Center Freq 2.46200000 GHz

#Avg Type: RMS
Avg/Hold: 500/500

Ref Offset 1.59 dB
Ref 30.00 dBm

Mkr1 2.462 00 GHz
Band Power 16.103 dBm

Start 2.44200 GHz
#Res BW 200 kHz

Stop 2.48200 GHz
Sweep 1.240 ms (601 pts)

#VBW 620 kHz*

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.462 00 GHz	-10.338 dBm	Band Power	17.87 MHz	16.103 dB
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								

Frequency

Auto Tune

Center Freq
2.46200000 GHz

Start Freq
2.44200000 GHz

Stop Freq
2.48200000 GHz

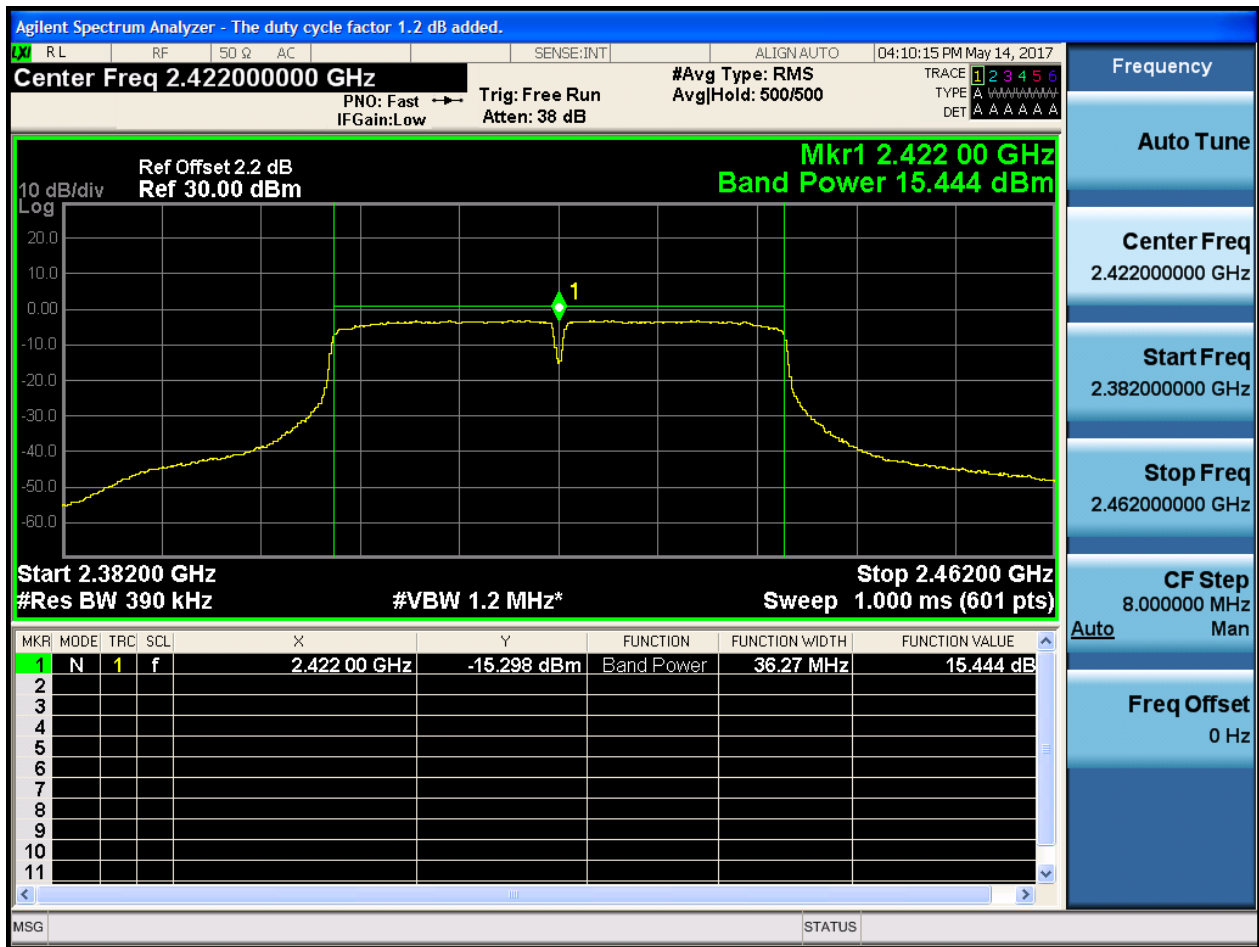
CF Step
4.000000 MHz

Auto

Freq Offset
0 Hz

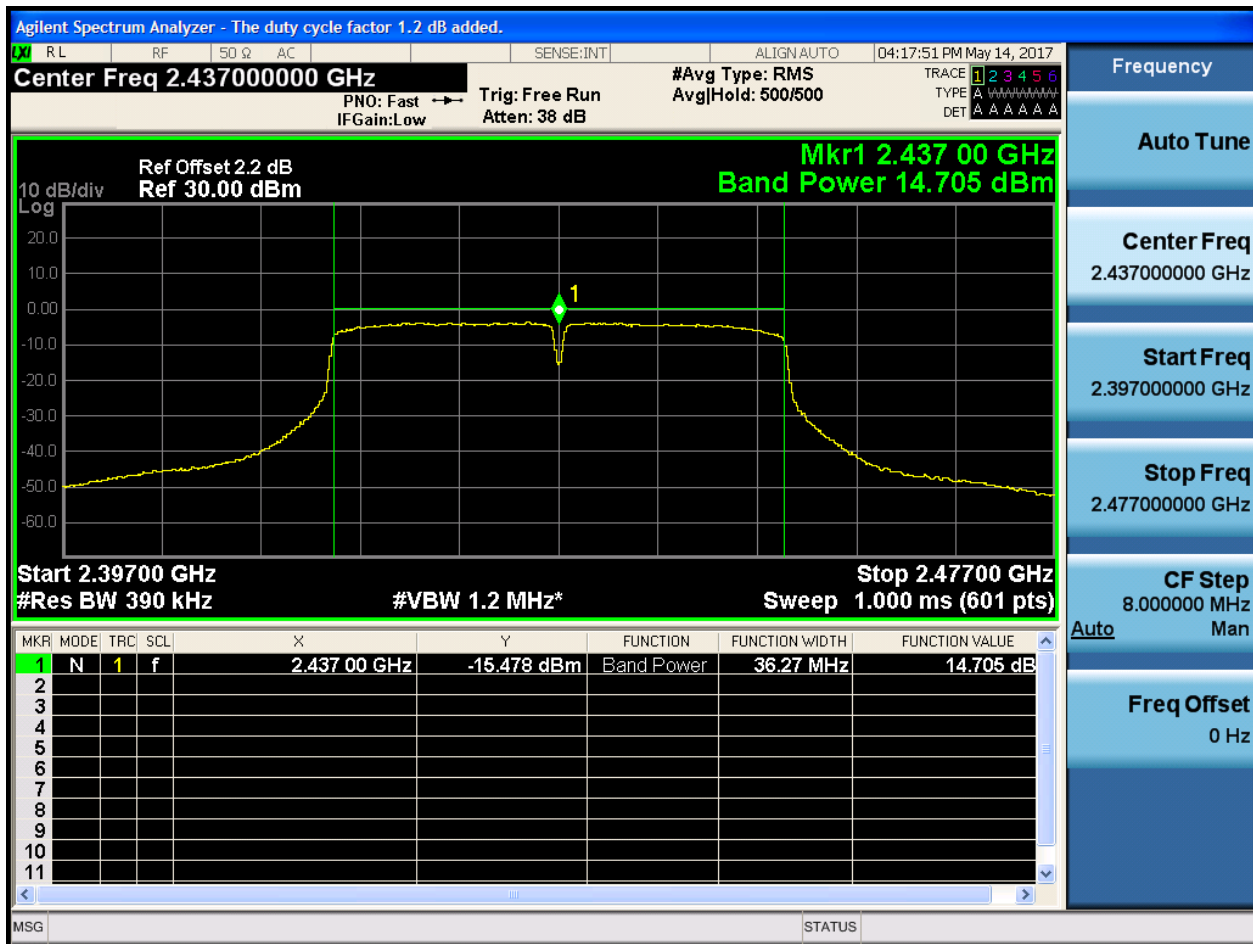


2.10 11N40_L@Ant 1



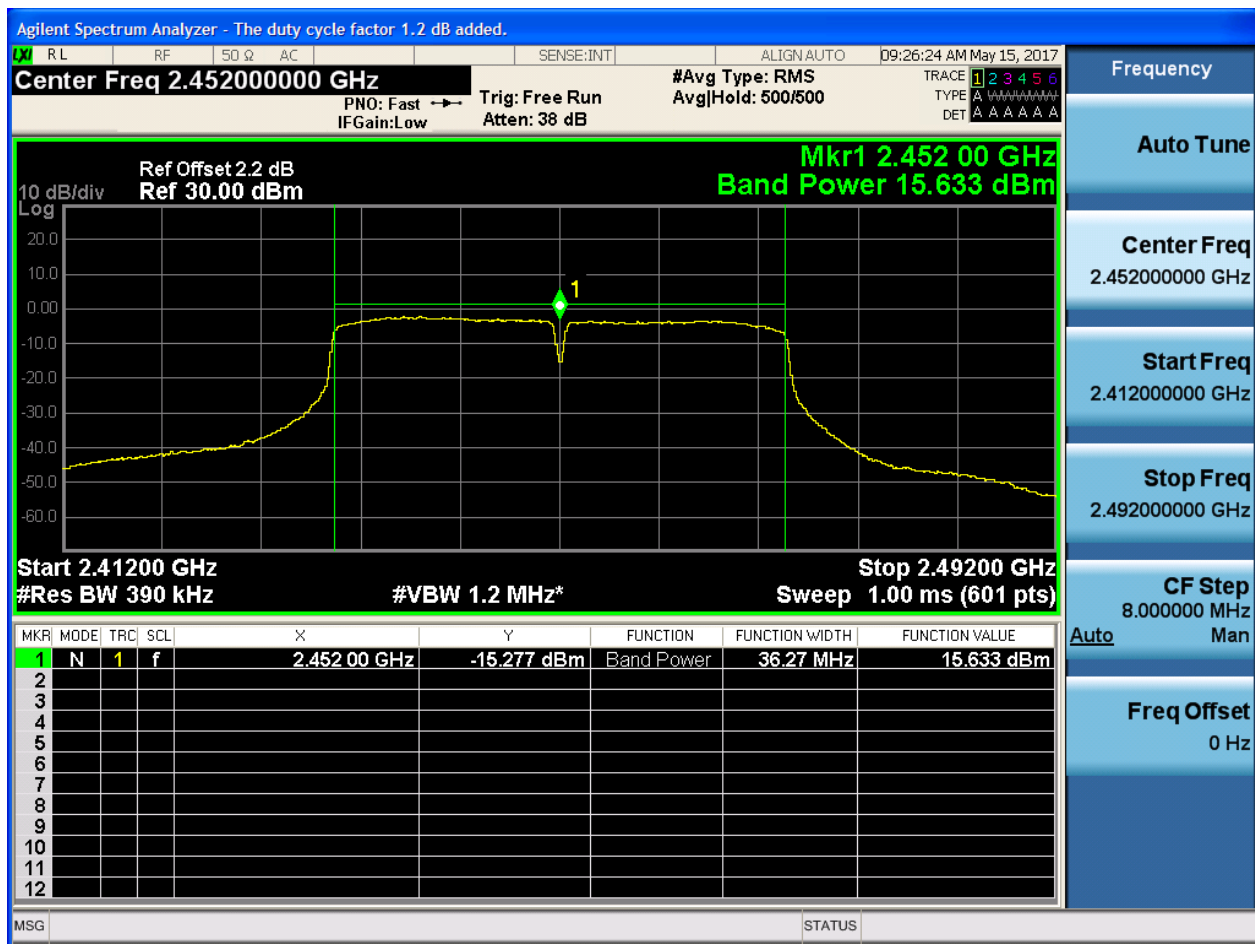


2.11 11N40_M@Ant 1





2.12 11N40_H@Ant 1



Appendix D: Maximum Power Spectral Density Level

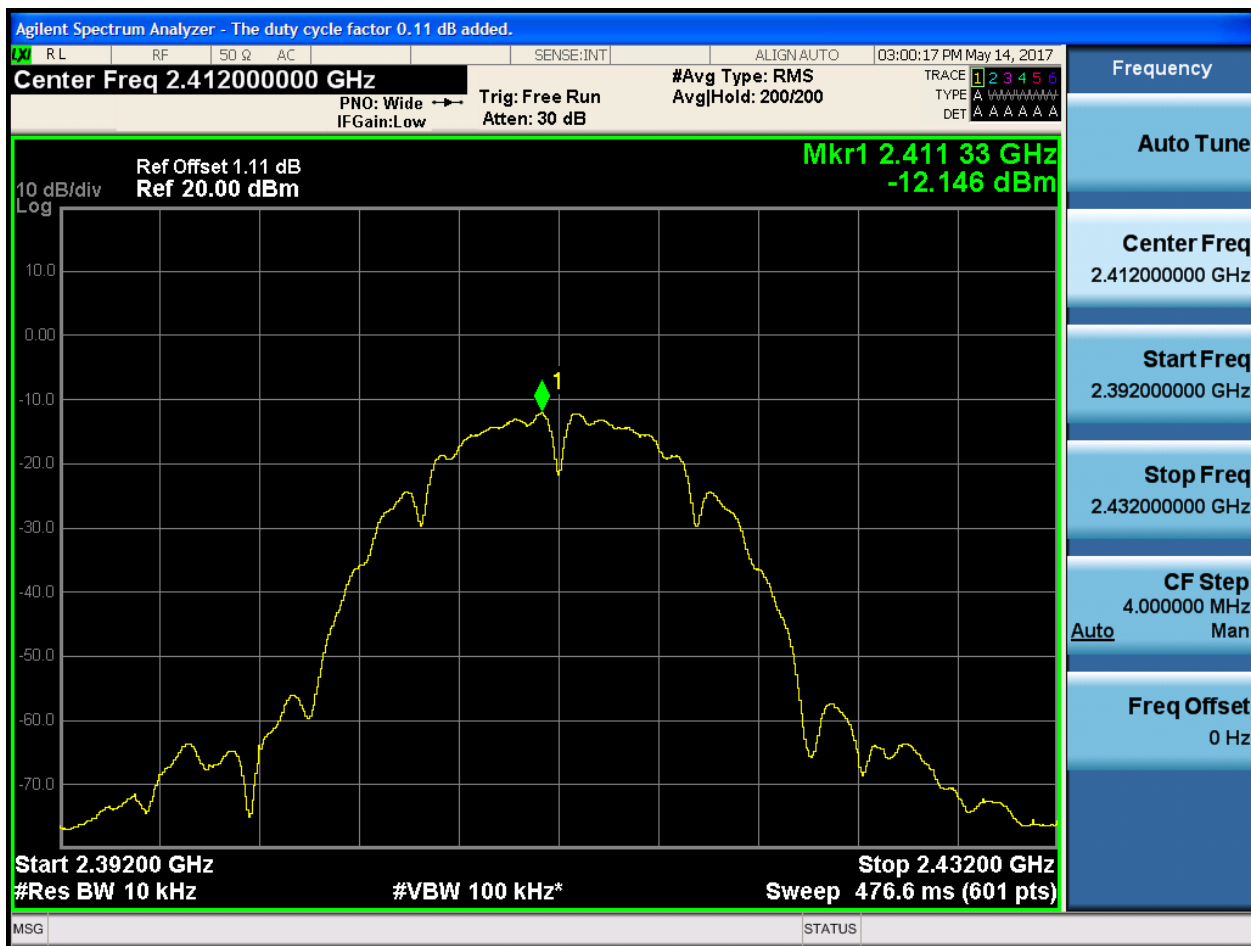
Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	PD[MHz]	Verdict
11B	L	2412	Ant 1	-12.15	pass
11B	M	2437	Ant 1	-12.01	pass
11B	H	2462	Ant 1	-12.34	pass
11G	L	2412	Ant 1	-13.14	pass
11G	M	2437	Ant 1	-12.53	pass
11G	H	2462	Ant 1	-13.01	pass
11N20	L	2412	Ant 1	-14.18	pass
11N20	M	2437	Ant 1	-13.94	pass
11N20	H	2462	Ant 1	-14.18	pass
11N40	L	2422	Ant 1	-17.72	pass
11N40	M	2437	Ant 1	-18.41	pass
11N40	H	2452	Ant 1	-17.24	pass



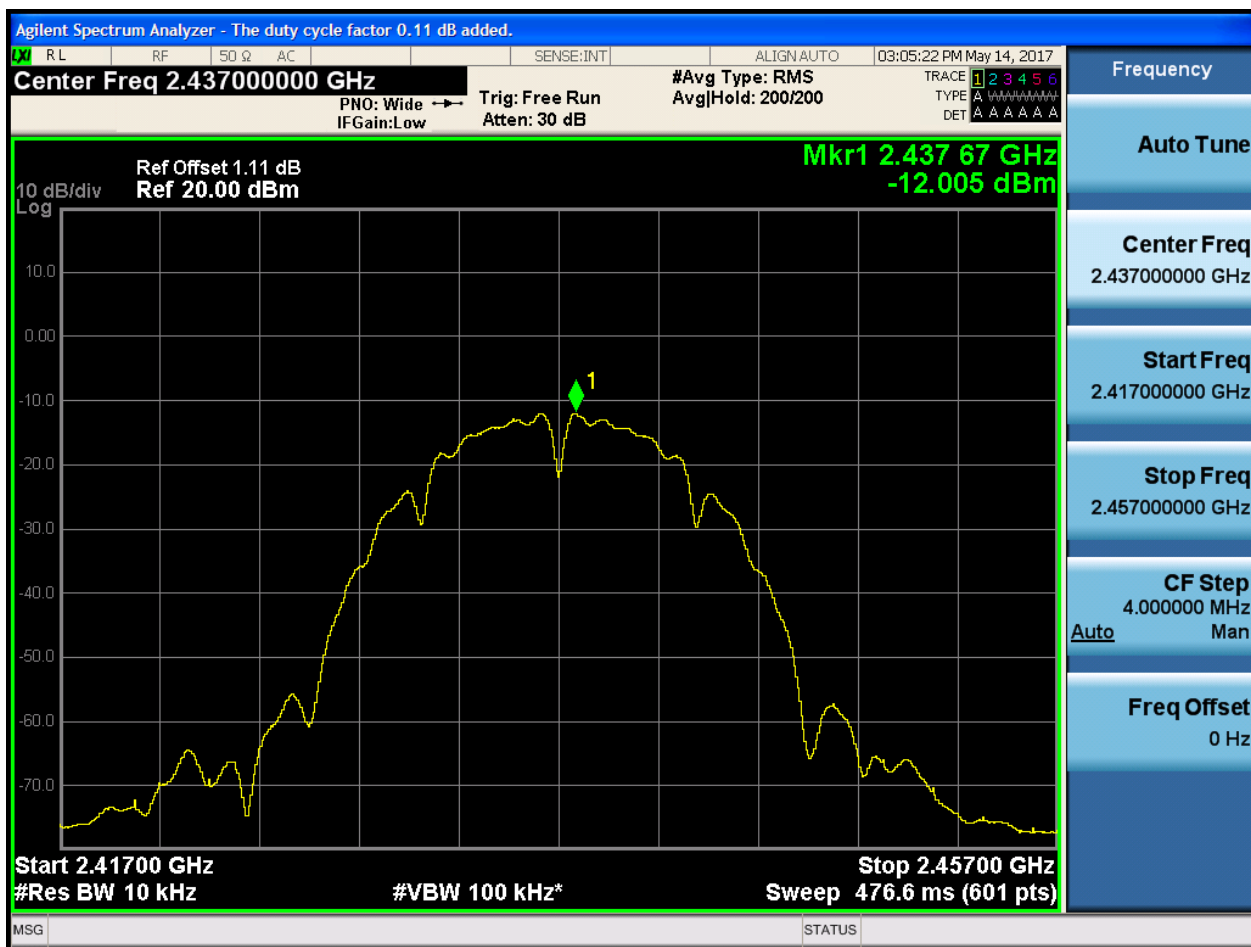
Part II - Test Plots

2.1 11B_L@Ant 1





2.2 11B_M@Ant 1



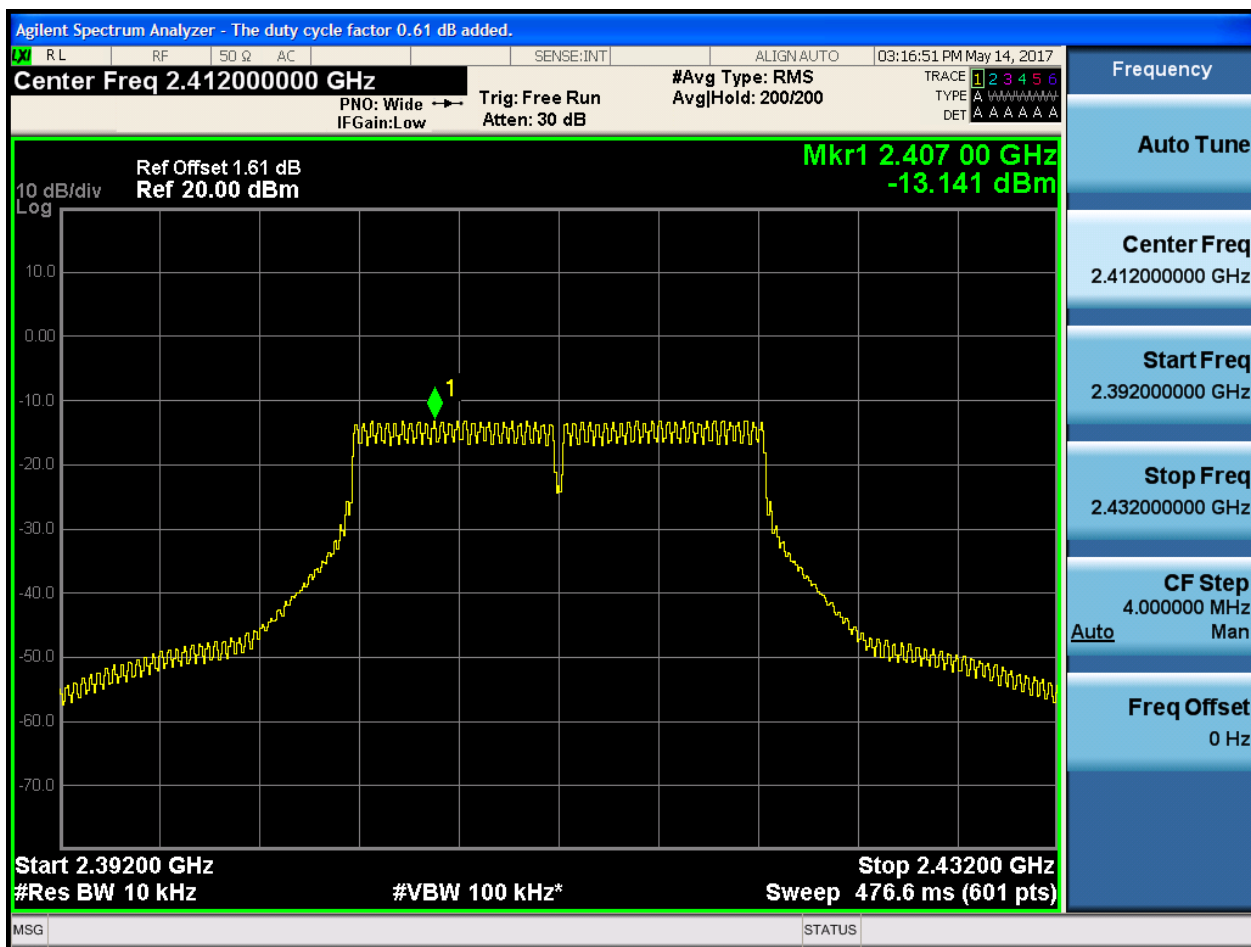


2.3 11B_H@Ant 1



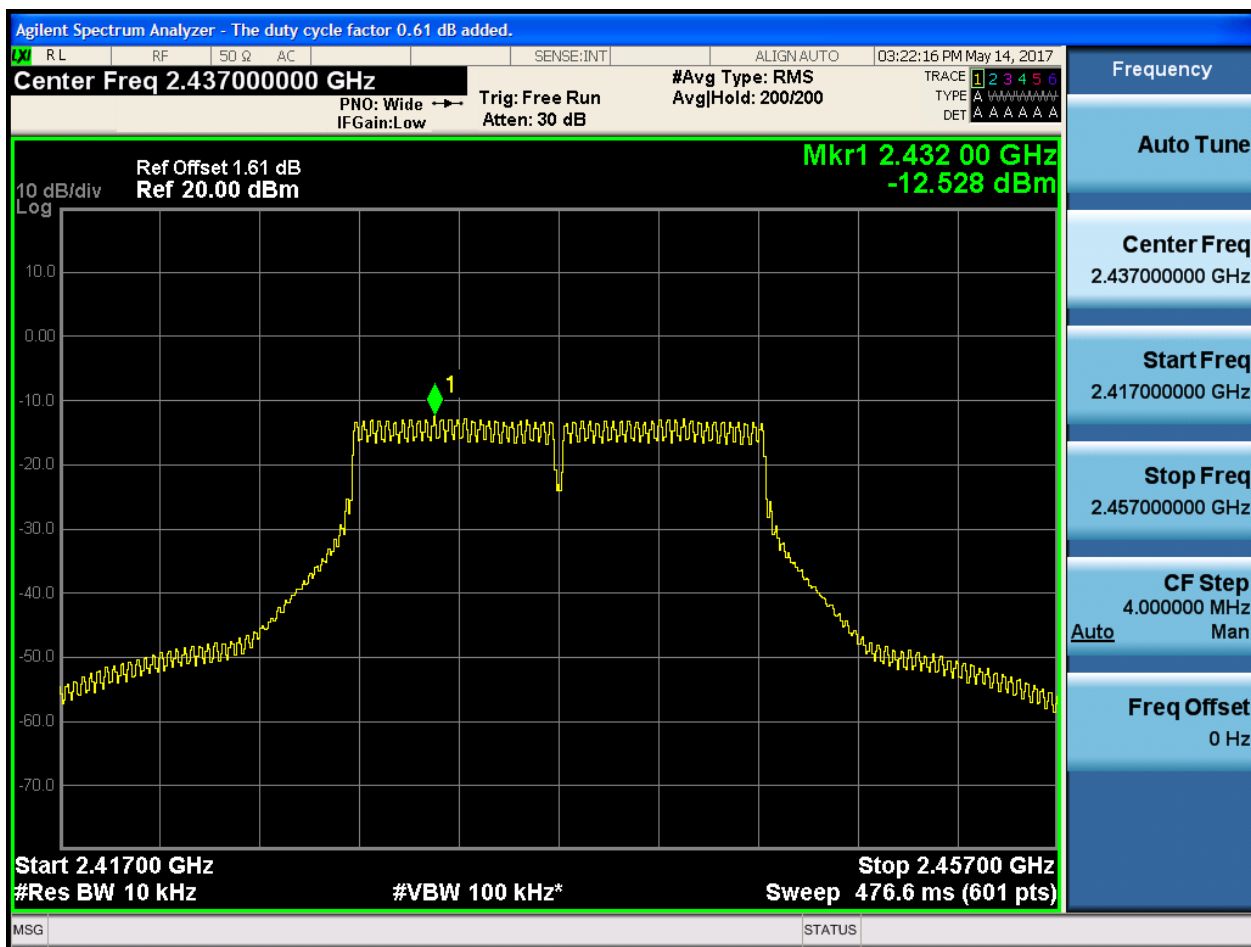


2.4 11G_L@Ant 1



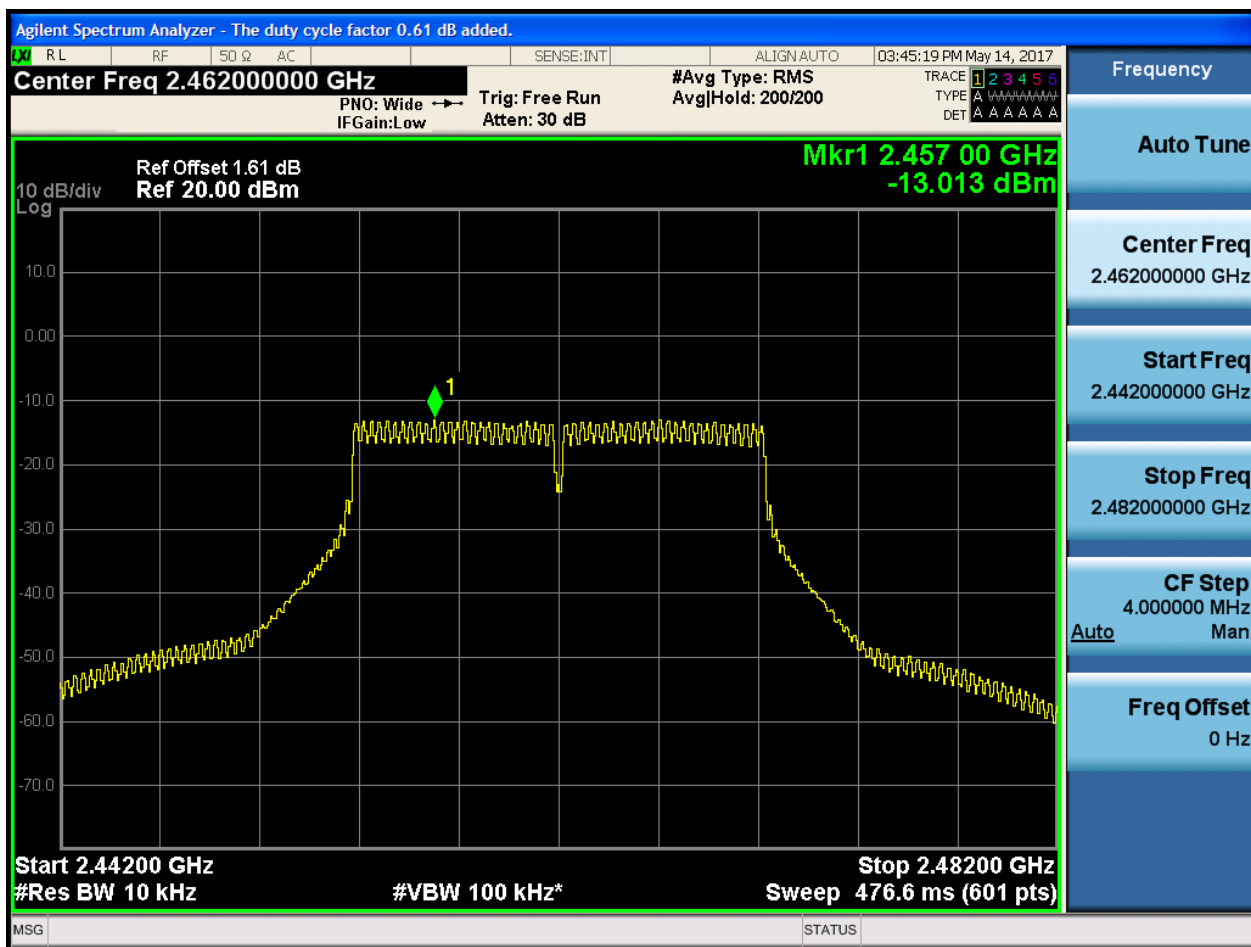


2.5 11G_M@Ant 1



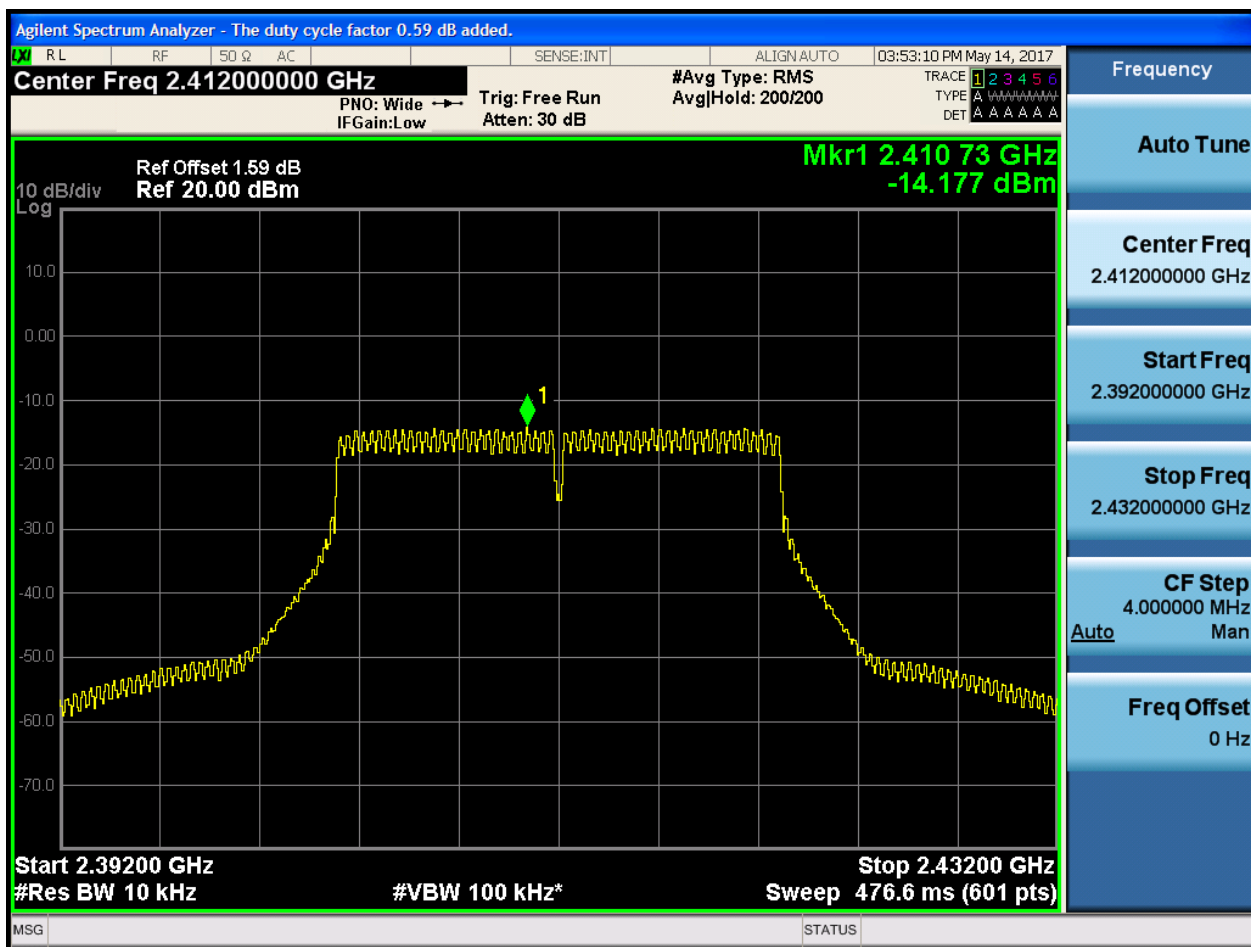


2.6 11G_H@Ant 1



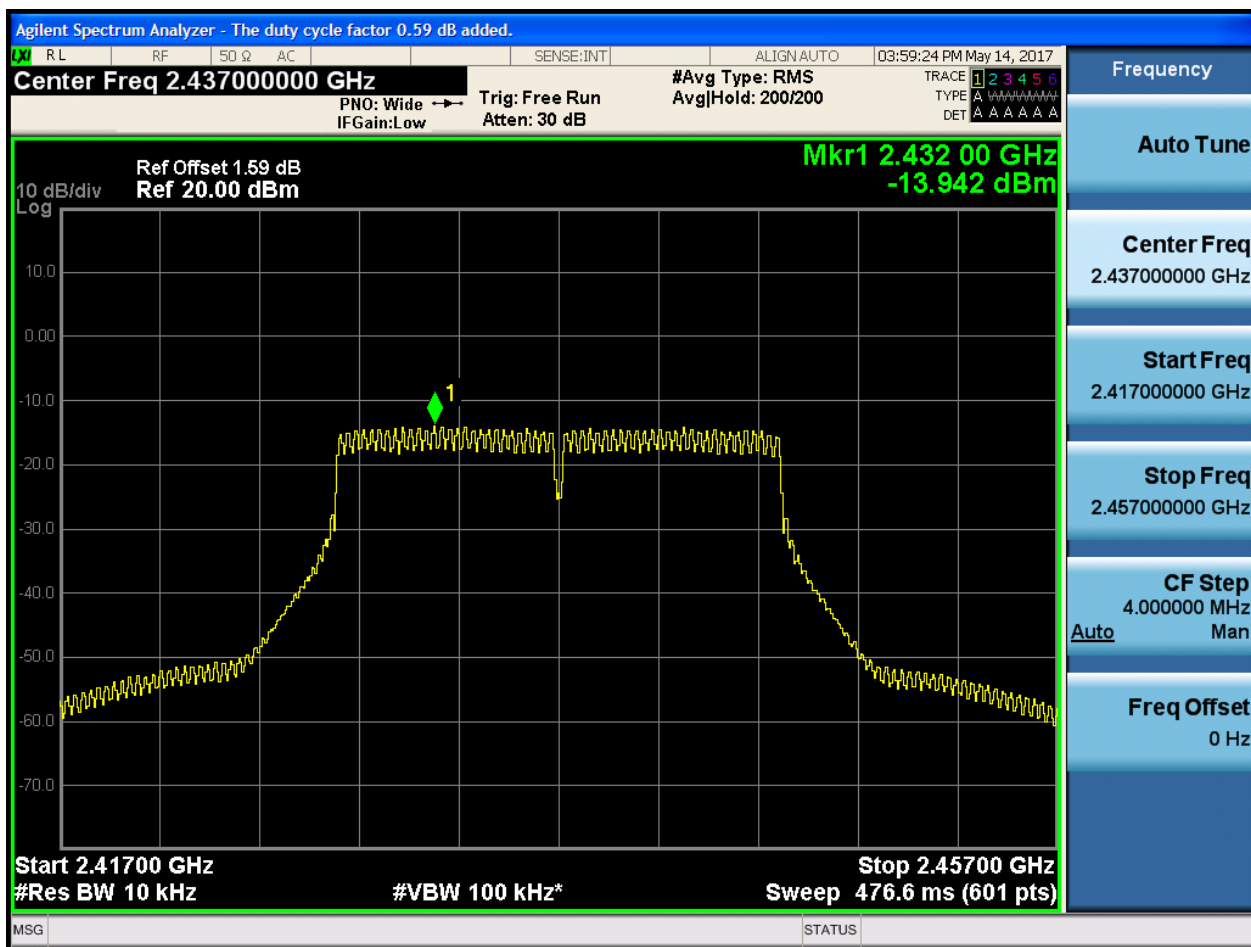


2.7 11N20_L@Ant 1



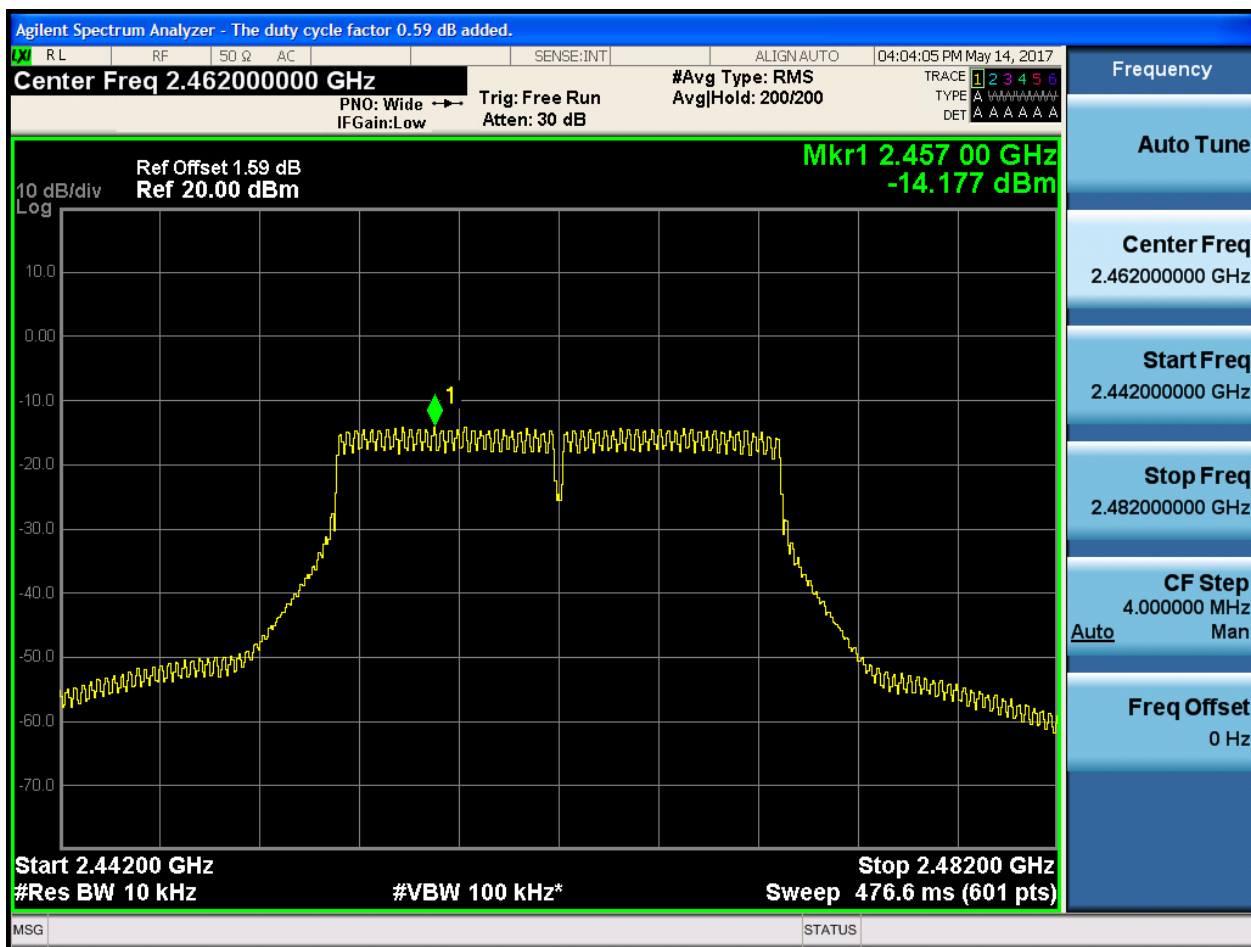


2.8 11N20_M@Ant 1



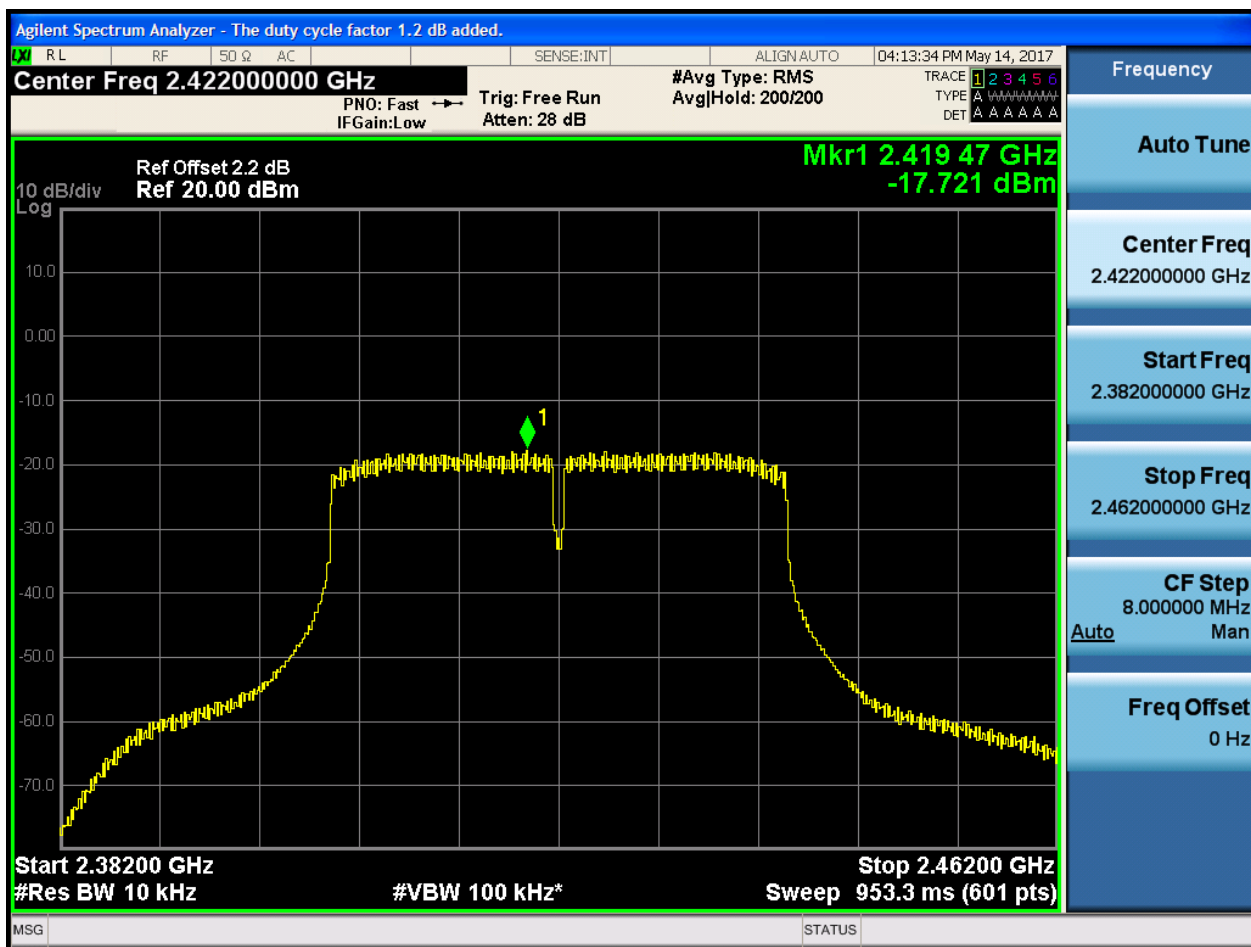


2.9 11N20_H@Ant 1



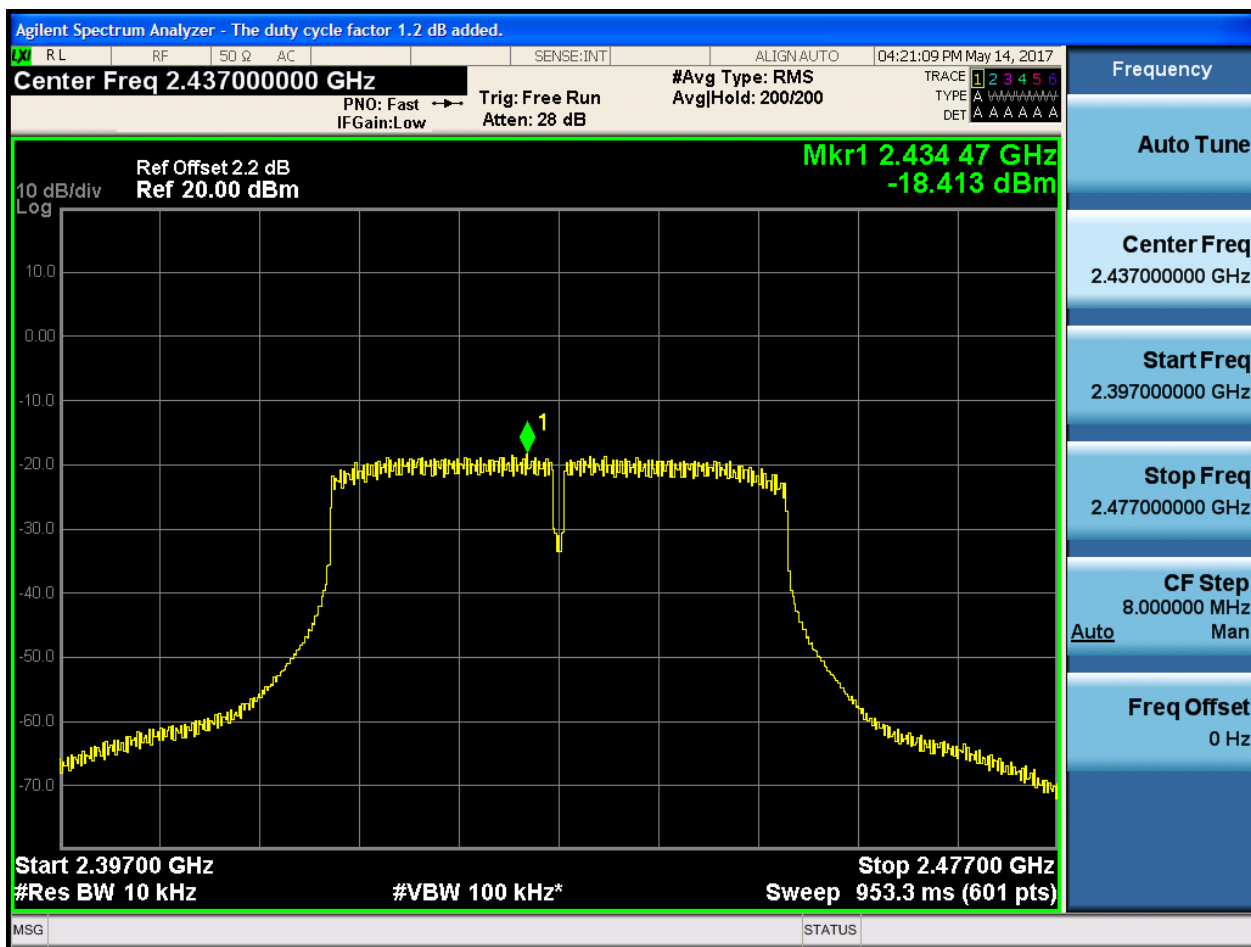


2.10 11N40_L@Ant 1



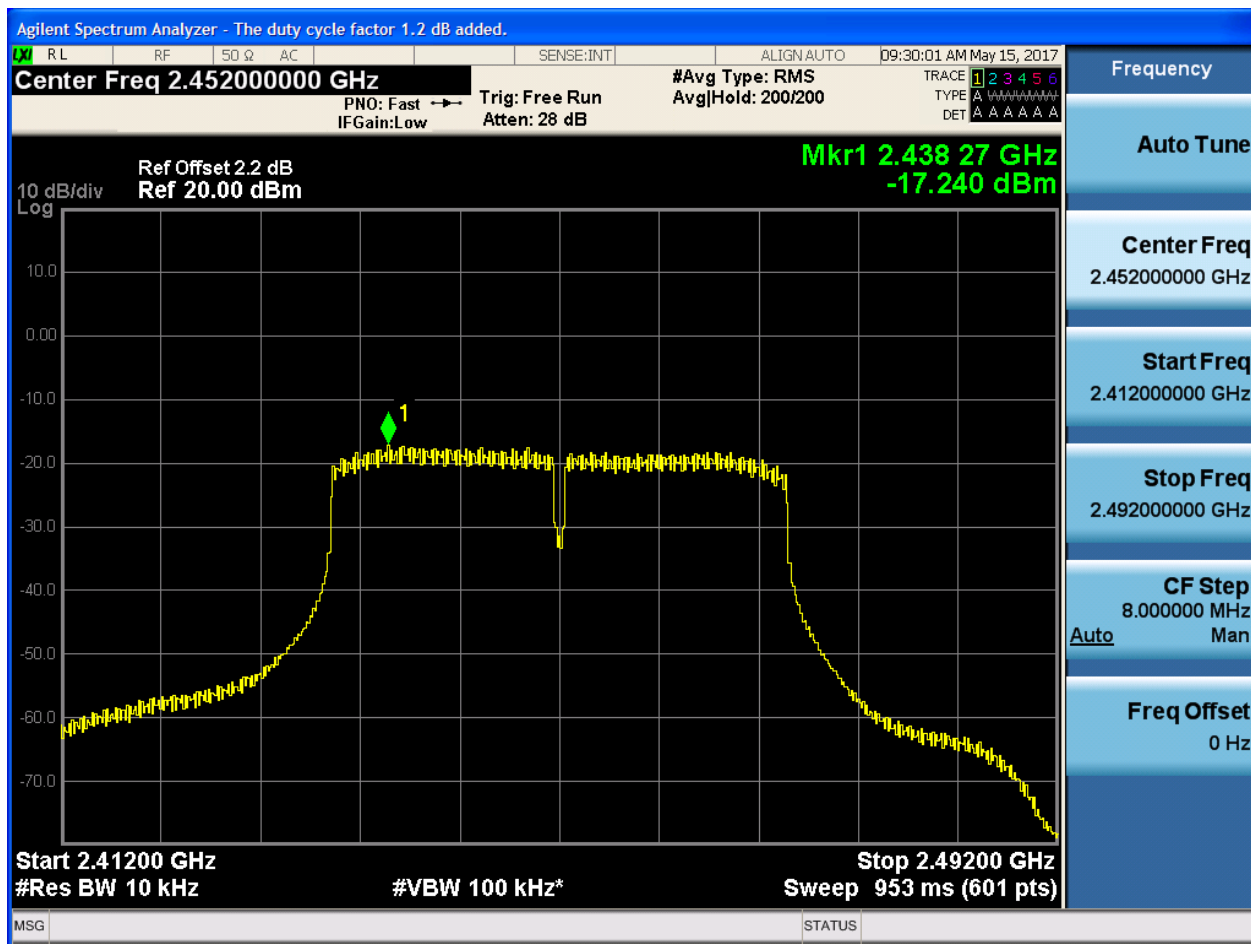


2.11 11N40_M@Ant 1





2.12 11N40_H@Ant 1



Appendix E: Band Edges Compliance

Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	Carrier Power[dBm]	Max.Spurious Level[dBm]	Verdict
11B	L	2412	Ant 1	6.74	-51.45	pass
11B	H	2462	Ant 1	6.61	-51.23	pass
11G	L	2412	Ant 1	6.34	-41.76	pass
11G	H	2462	Ant 1	6.27	-41.10	pass
11N20	L	2412	Ant 1	5.13	-39.23	pass
11N20	H	2462	Ant 1	5.36	-40.06	pass
11N40	L	2422	Ant 1	1.78	-39.26	pass
11N40	H	2452	Ant 1	1.99	-40.99	pass



Part II - Test Plots

2.1 11B_L@Ant 1



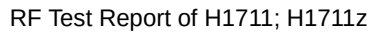


2.2 11B_H@Ant 1



2.3 11G_L@Ant 1





Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω AC SENSE:INT ALIGN AUTO 03:47:45 PM May 14, 2017

Center Freq 2.473500000 GHz Avg Type: Log-Pwr Avg/Hold: 100/100

PNO: Wide IFGain:Low Trig: Free Run Atten: 40 dB

TRACE 1 2 3 4 5 6
TYPE M W W W W W W W
DET P P P P P P

Ref Offset 1 dB
Ref 30.00 dBm

**Mkr2 2.483 50 GHz
-41.095 dBm**

10 dB/div
Log

Start 2.45350 GHz Stop 2.49350 GHz
#Res BW 100 kHz #VBW 300 kHz #Sweep 100.0 ms (601 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.455 77 GHz	6.269 dBm			
2	N	1	f	2.483 50 GHz	-41.095 dBm			
3								
4								
5								
6								
7								
8								
9								
10								
11								

MSG STATUS

Frequency

Auto Tune

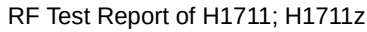
Center Freq
2.473500000 GHz

Start Freq
2.453500000 GHz

Stop Freq
2.493500000 GHz

CF Step
4.000000 MHz
Auto Man

Freq Offset
0 Hz



Agilent Spectrum Analyzer - Swept SA

Center Freq **2.40000000 GHz** Avg Type: Log-Pwr
PNO: Wide → Trig: Free Run Attenuation: 40 dB
IFGain: Low

Frequency: 03:55:26 PM May 14, 2017
TRACE 1 2 3 4 5 6
TYPE M W W W W W W W
DET P P P P P P

Ref Offset 1 dB
Ref 30.00 dBm

Mkr2 2.390 00 GHz
-39.229 dBm

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.419 47 GHz	-5.131 dBm			
2	N	1	f	2.390 00 GHz	-39.229 dBm			
3								
4								
5								
6								
7								
8								
9								
10								
11								

Start 2.38000 GHz Stop 2.42000 GHz
#Res BW 100 kHz #VBW 300 kHz #Sweep 100.0 ms (601 pts)

Auto Tune
Center Freq 2.40000000 GHz
Start Freq 2.380000000 GHz
Stop Freq 2.420000000 GHz
CF Step 4.000000 MHz Man
Freq Offset 0 Hz

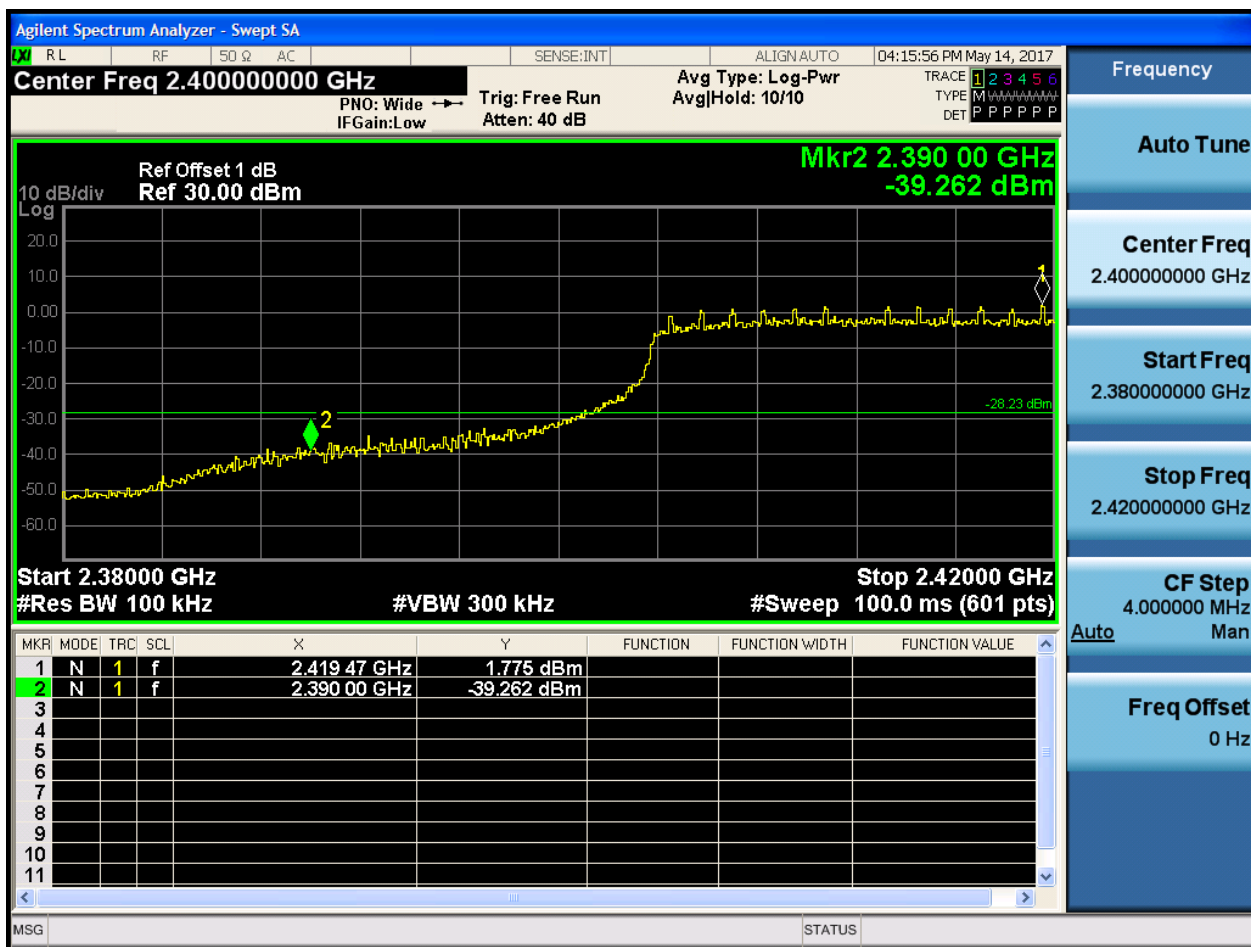


2.6 11N20_H@Ant 1



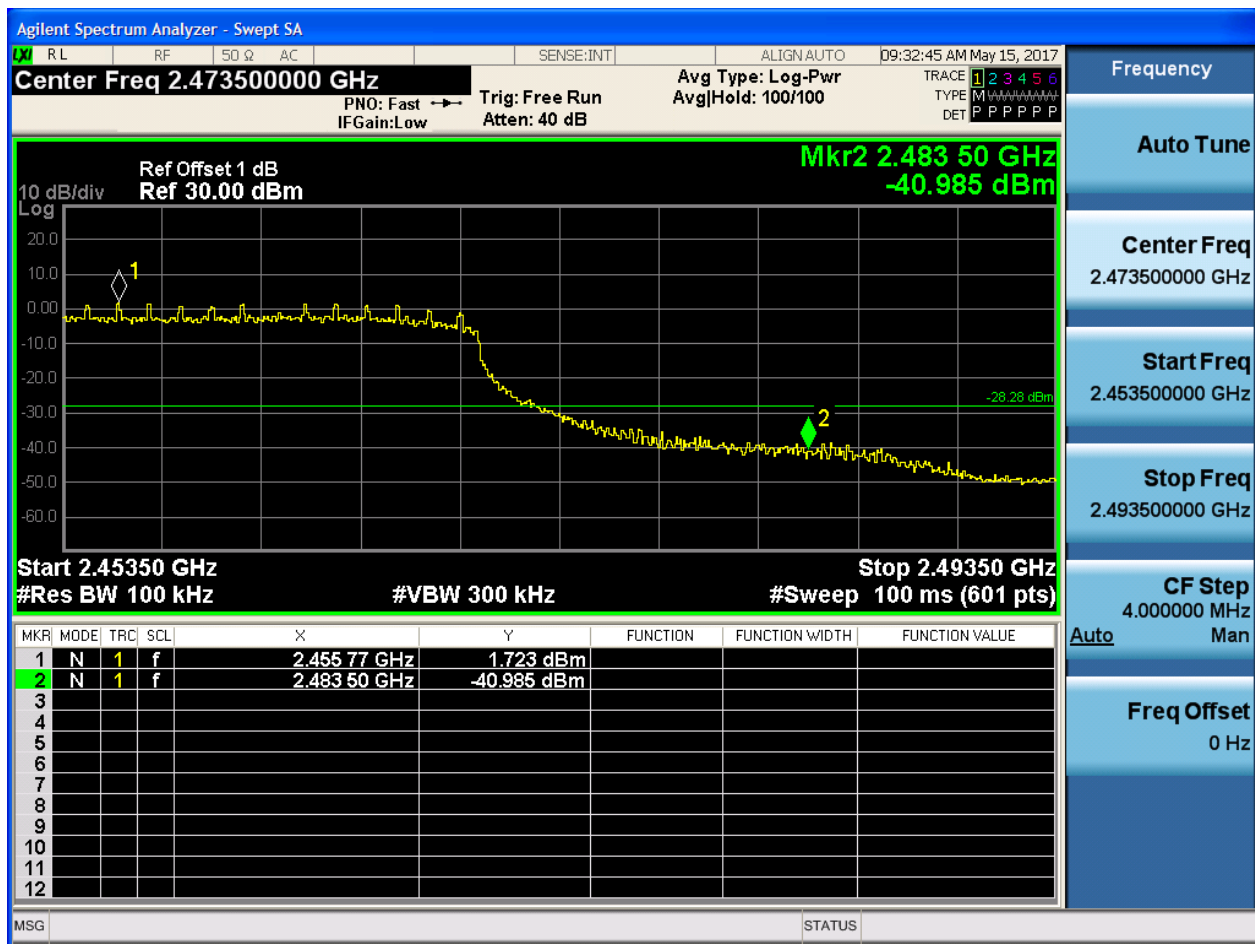


2.7 11N40_L@Ant 1





2.8 11N40_H@Ant 1



Appendix F: Unwanted Emissions into Non-Restricted Frequency

Bands

In this Appendix, the "Pref", which is used as the reference level, refers to the peak power level in any 100 kHz bandwidth within the fundamental emission, the "Puw" refers to the maximum emission power in 100 kHz band segments outside of the authorized frequency band.

Considering that the higher ratio of RBW to the span for the frequency ranges below 30 MHz makes the results determination be complicated, a narrower RBW other than 100 kHz is used for these ranges. The measured value should add a RBW correction factor (RBWCF) where $RBWCF [dB] = 10 \times \lg(100 [kHz]/\text{narrower RBW [kHz]})$. As to this Appendix, the narrower RBW is 1 kHz and RBWCF is 20 dB for the frequency 9 kHz to 150 kHz, and the narrower RBW is 10 kHz and RBWCF is 10 dB for the frequency 150 kHz to 30 MHz.

For measurements on smart antenna systems (devices with multiple transmit chains), the test is performed at each chain and used as respective results for each chain, due to the relative-limit requirement.

In the result table, the "< Limit" denotes that "The Puw [dBm] is less than Pref[dBm]-30[dBm], see test plots for detailed".

Part I - Test Results

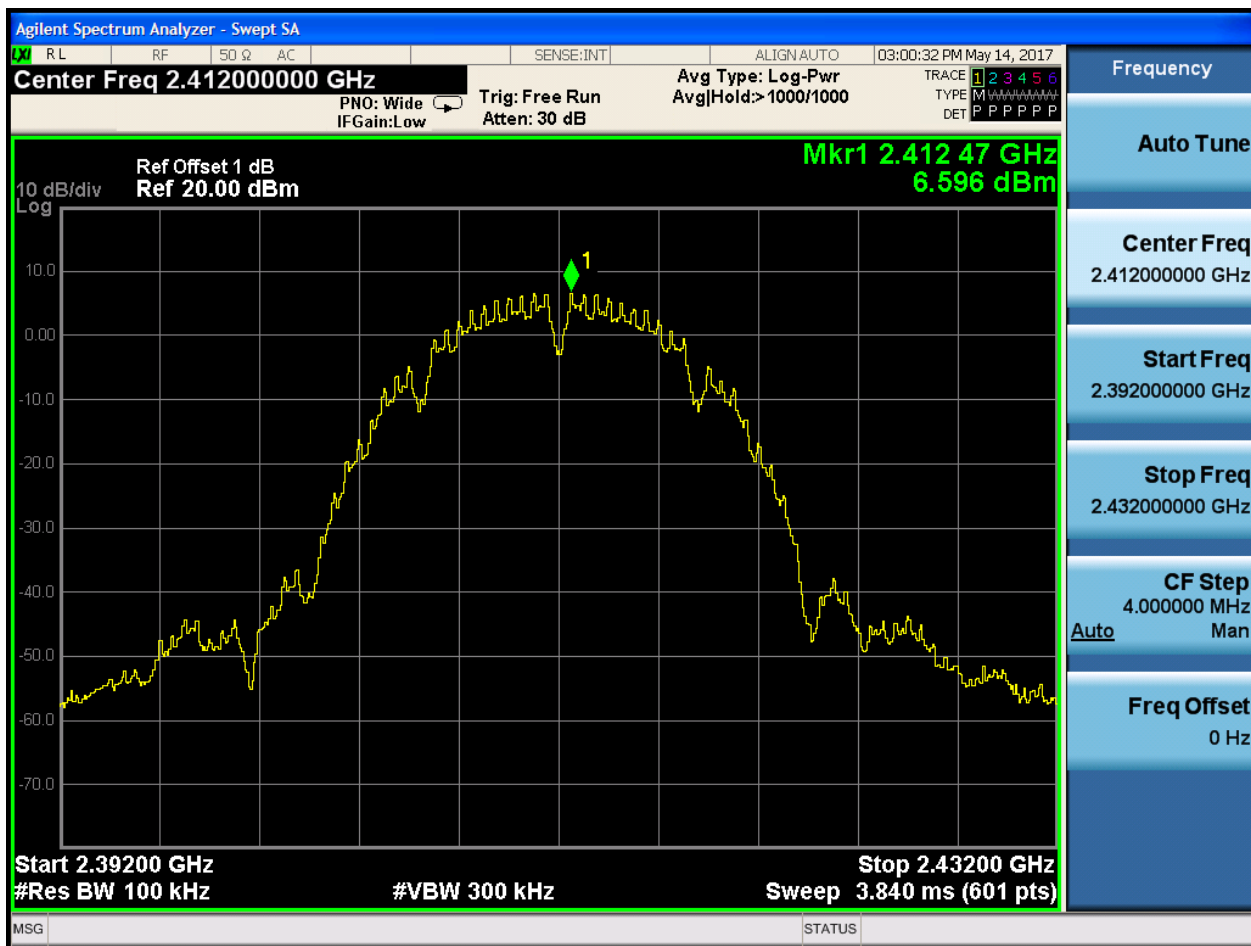
Test Mode	Test Channel	Frequency[MHz]	Ant	Pref[dBm]	Puw[dBm]	Verdict
11B	L	2412	Ant 1	6.60	<limit	pass
11B	M	2437	Ant 1	7.22	<limit	pass
11B	H	2462	Ant 1	6.79	<limit	pass
11G	L	2412	Ant 1	6.23	<limit	pass
11G	M	2437	Ant 1	6.46	<limit	pass
11G	H	2462	Ant 1	6.30	<limit	pass
11N20	L	2412	Ant 1	5.15	<limit	pass
11N20	M	2437	Ant 1	5.33	<limit	pass
11N20	H	2462	Ant 1	5.60	<limit	pass
11N40	L	2422	Ant 1	1.96	<limit	pass
11N40	M	2437	Ant 1	1.24	<limit	pass
11N40	H	2452	Ant 1	2.61	<limit	pass



Part II - Test Plots

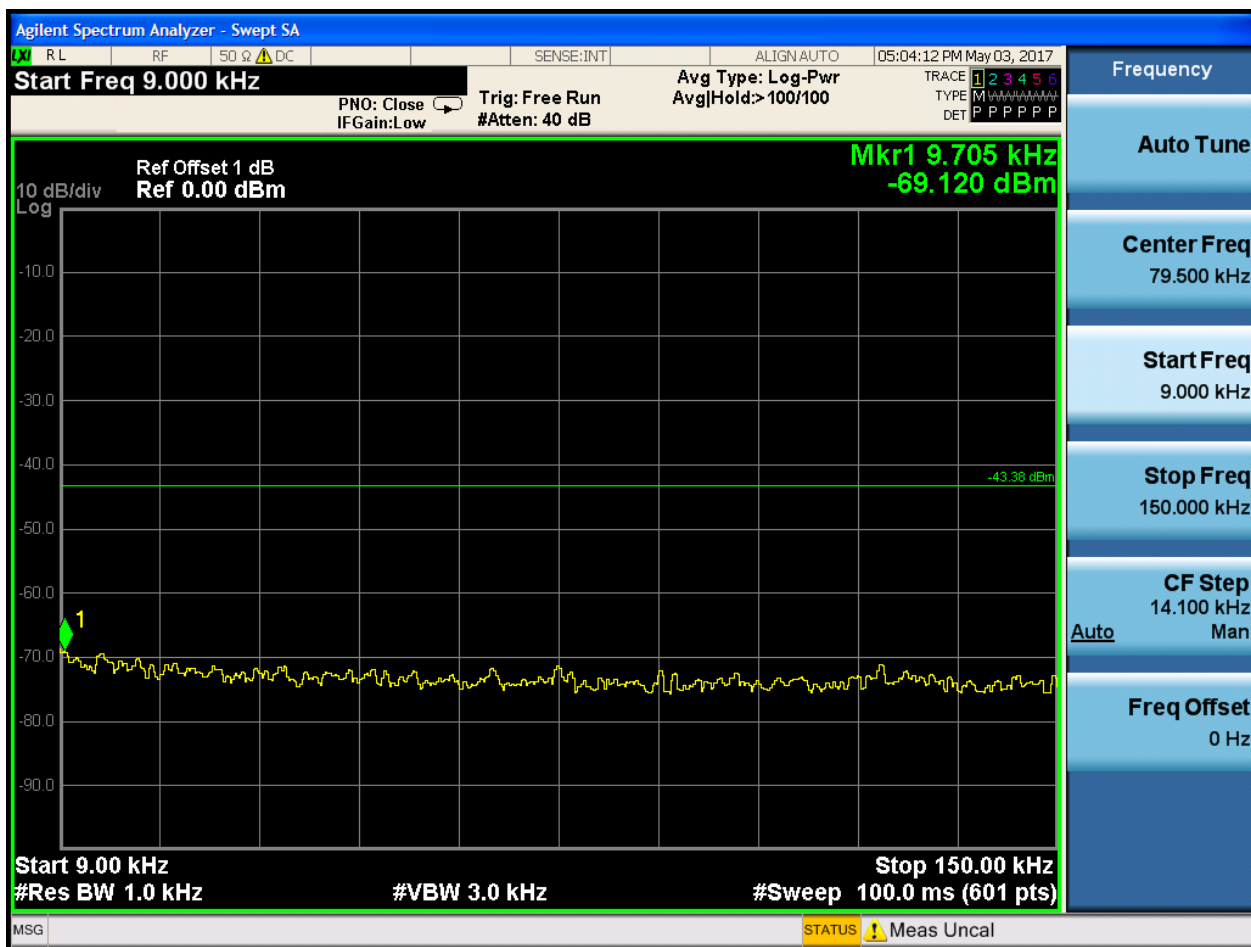
2.1 11B_L@Ant 1

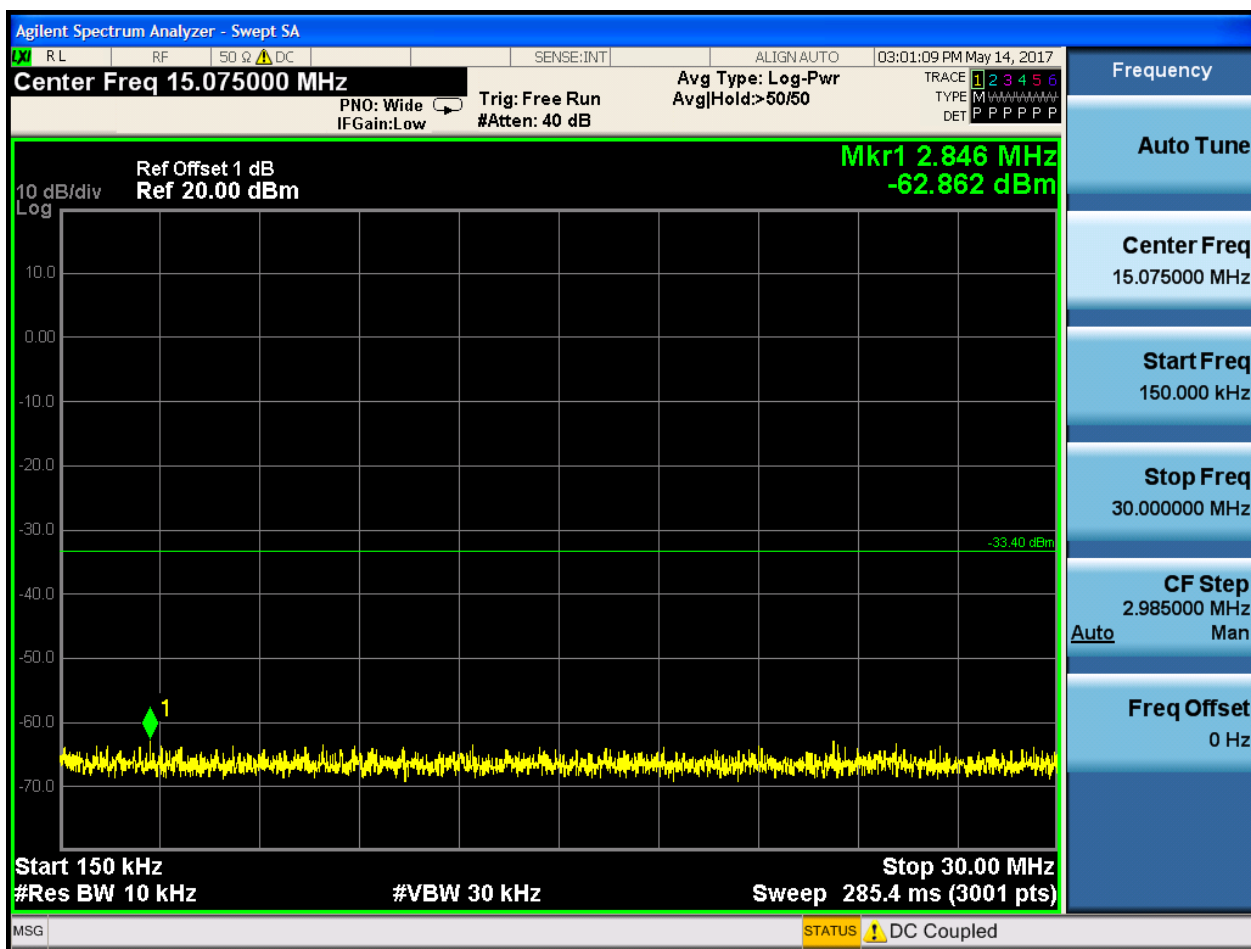
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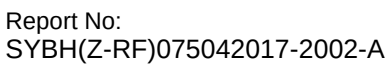
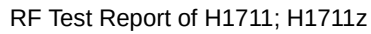


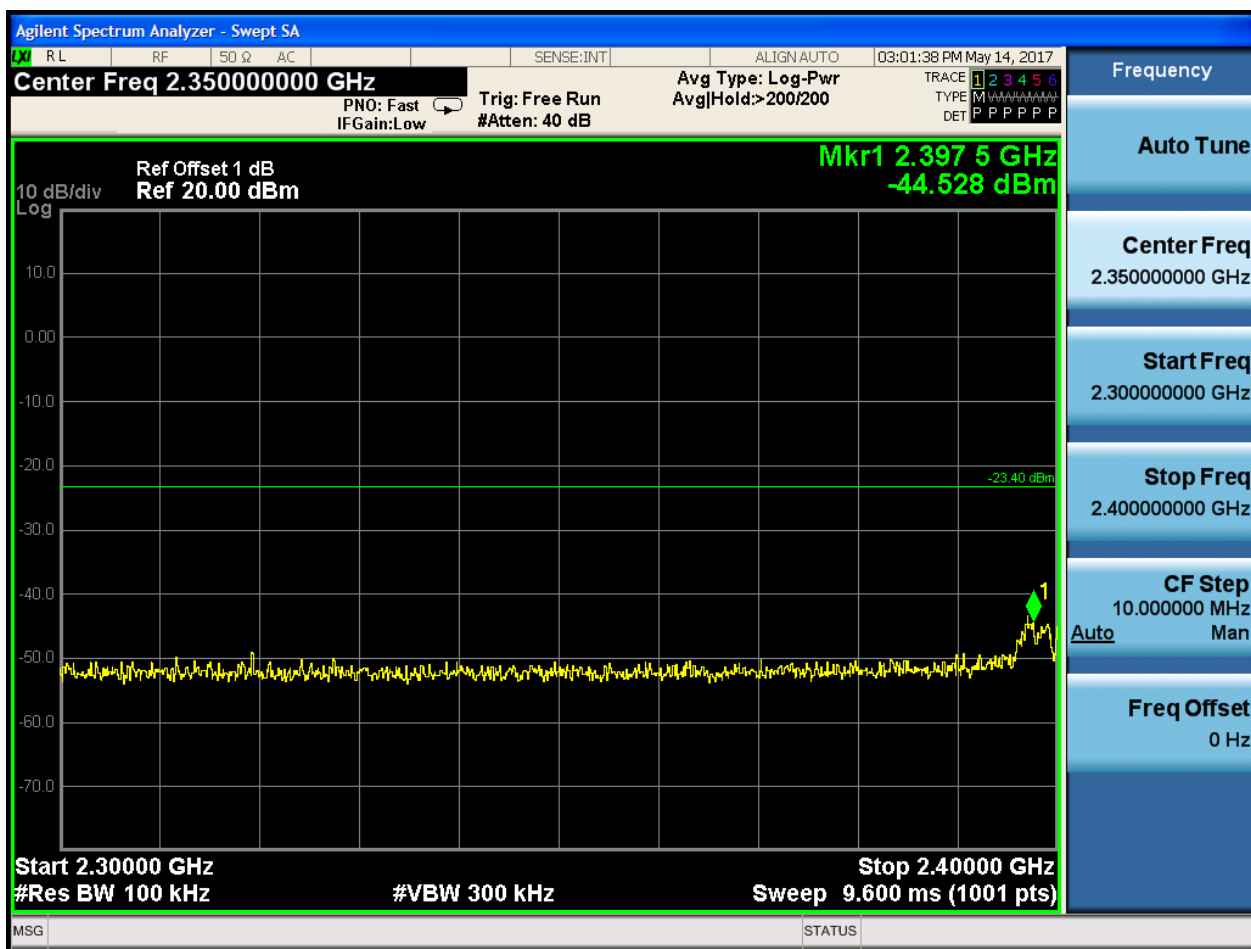


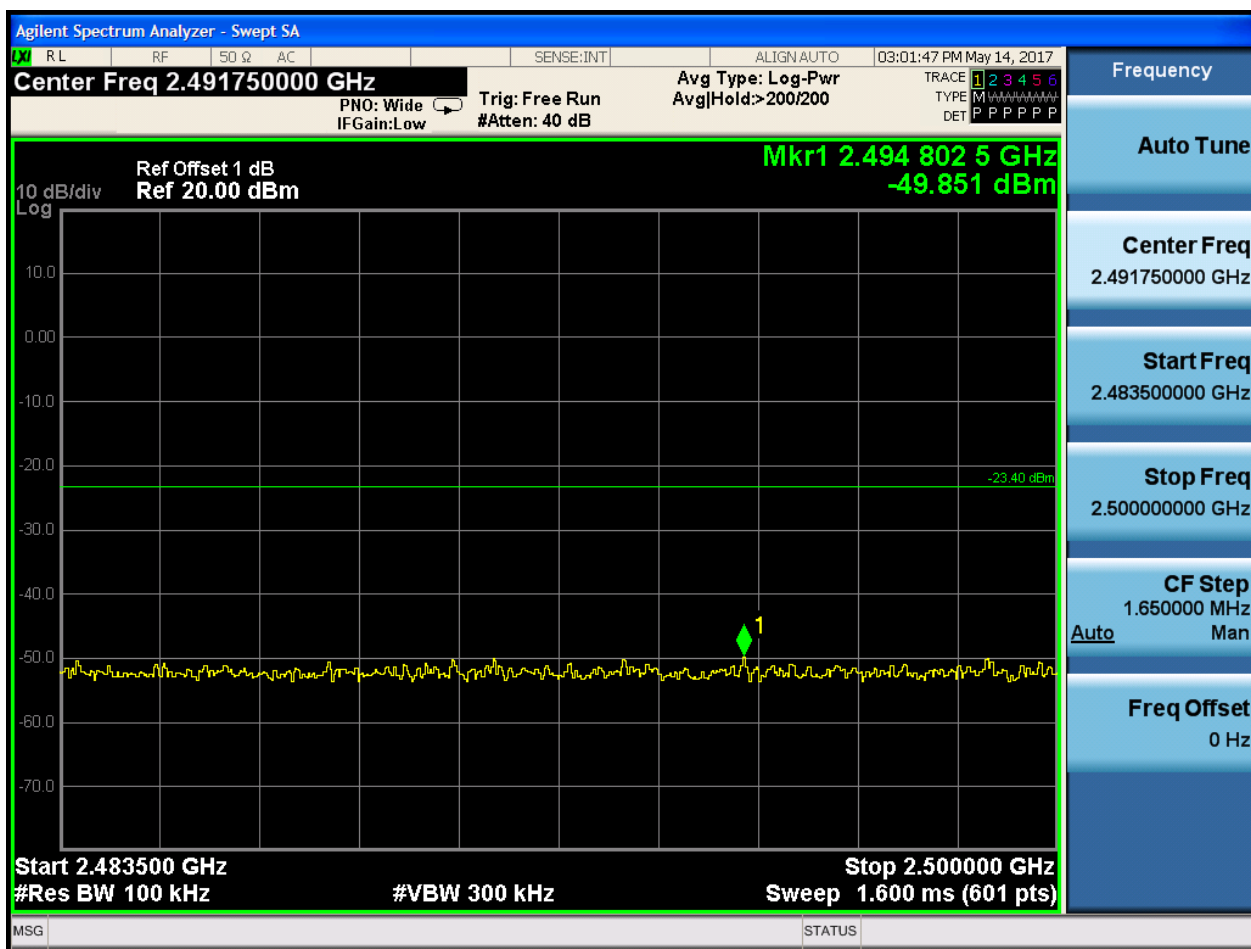
Puw:









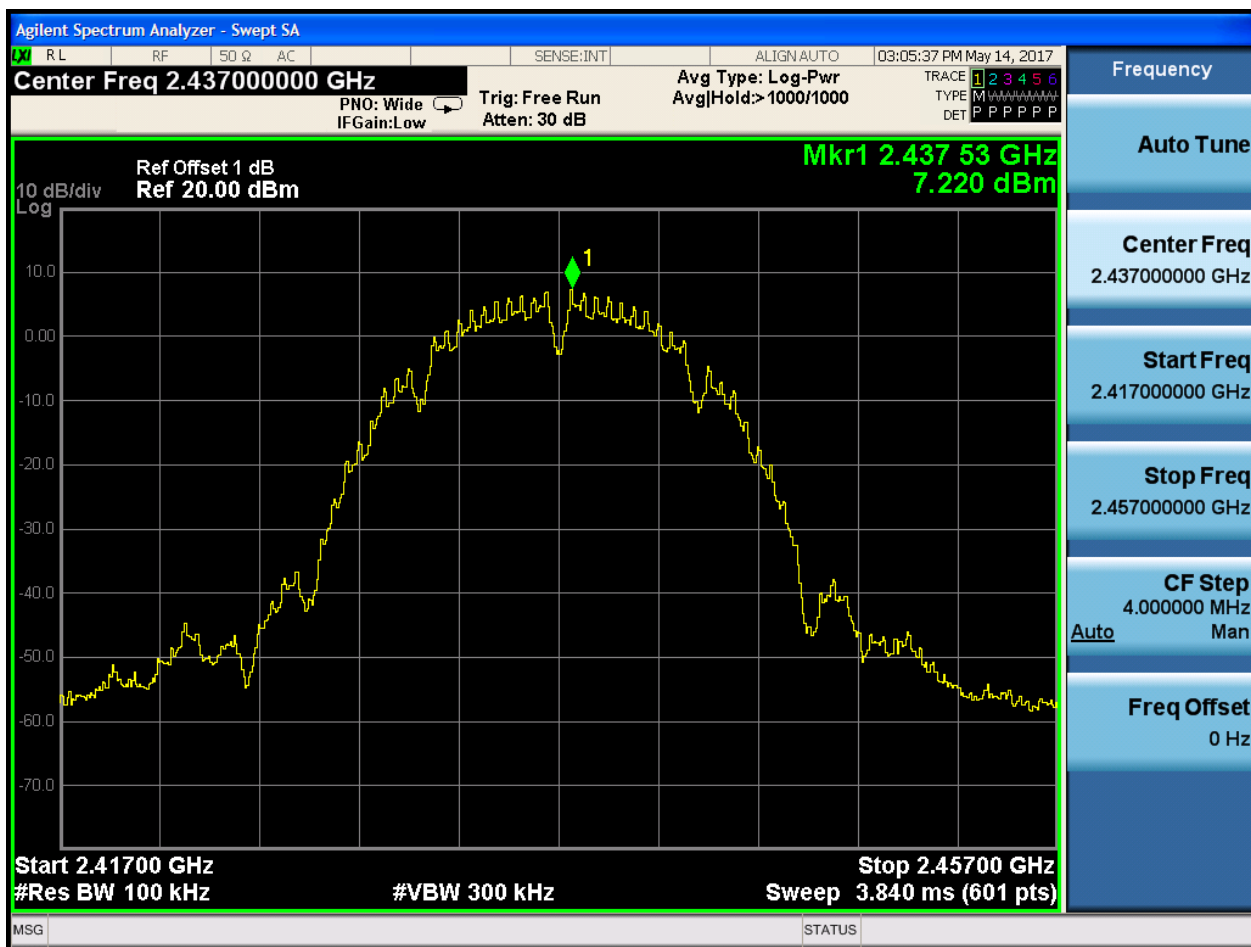






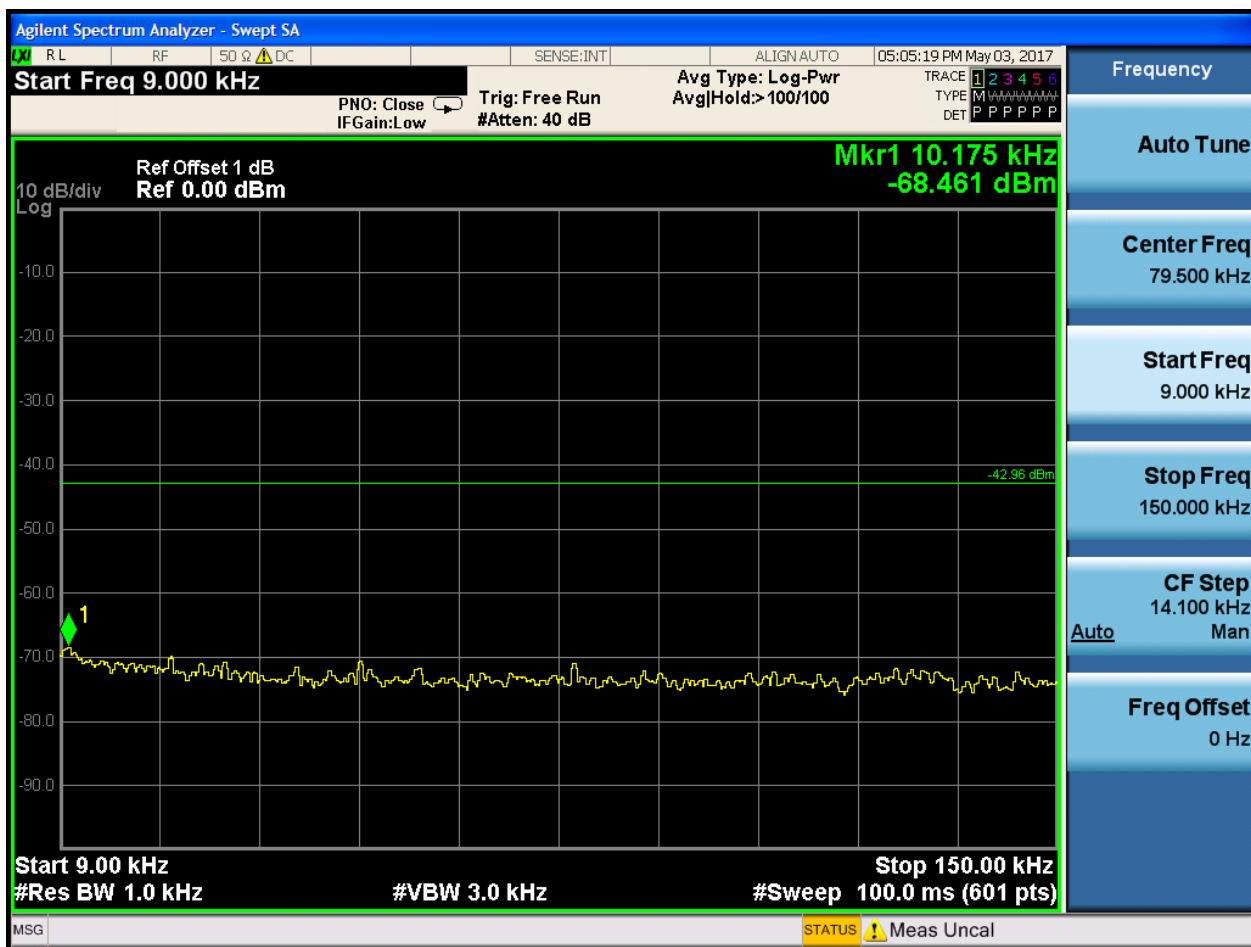
2.2 11B_M@Ant 1

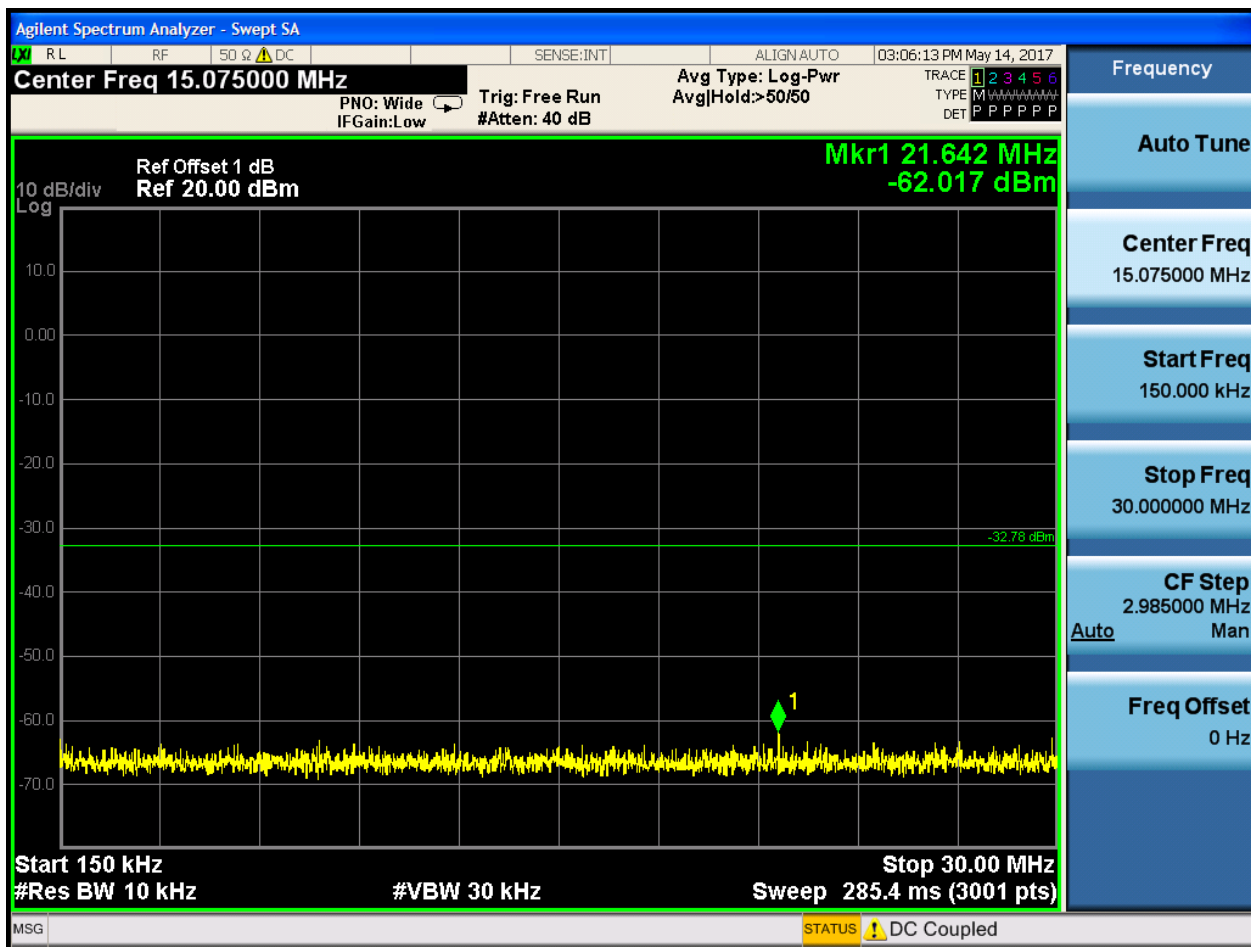
Pref:

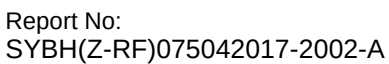
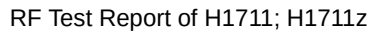


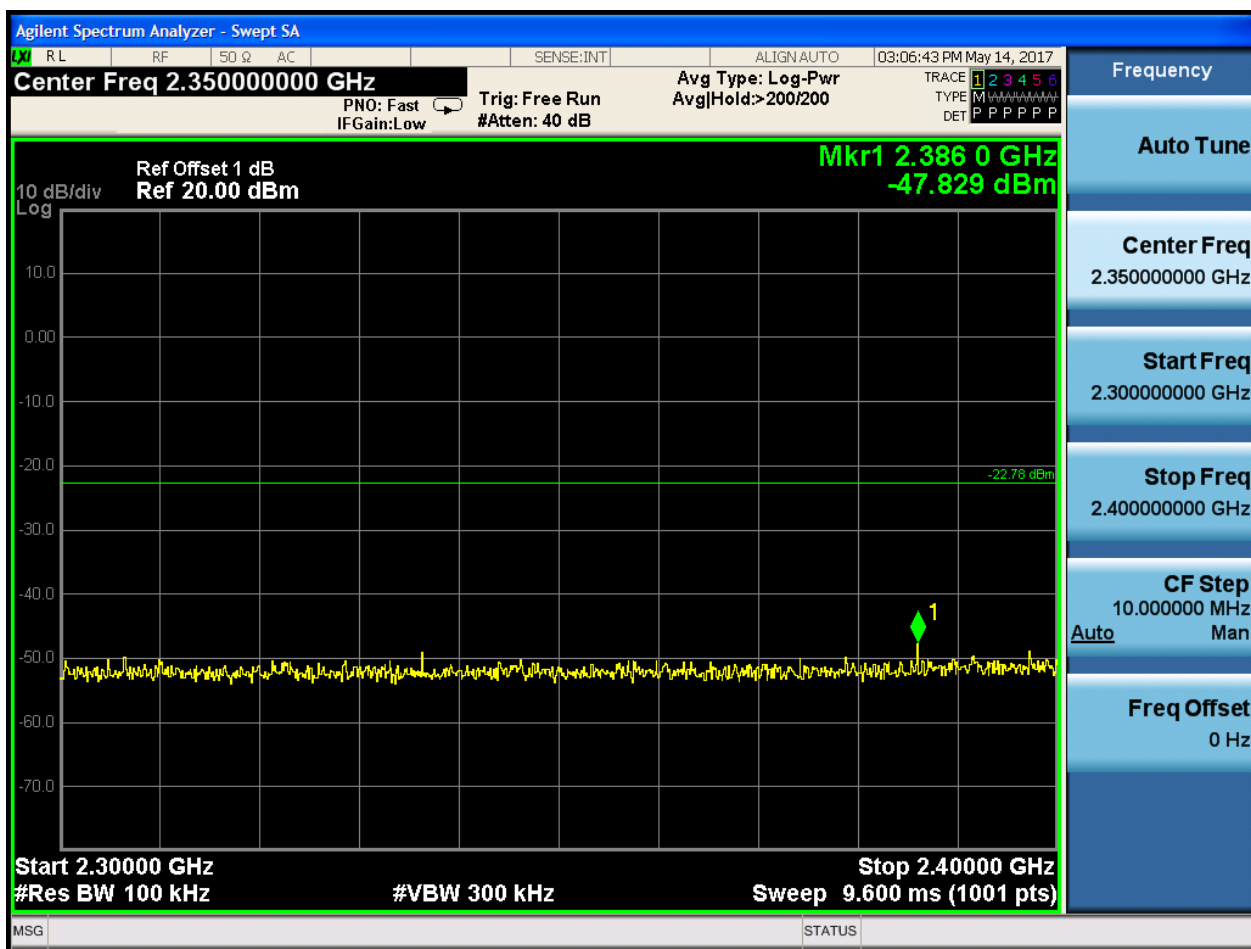


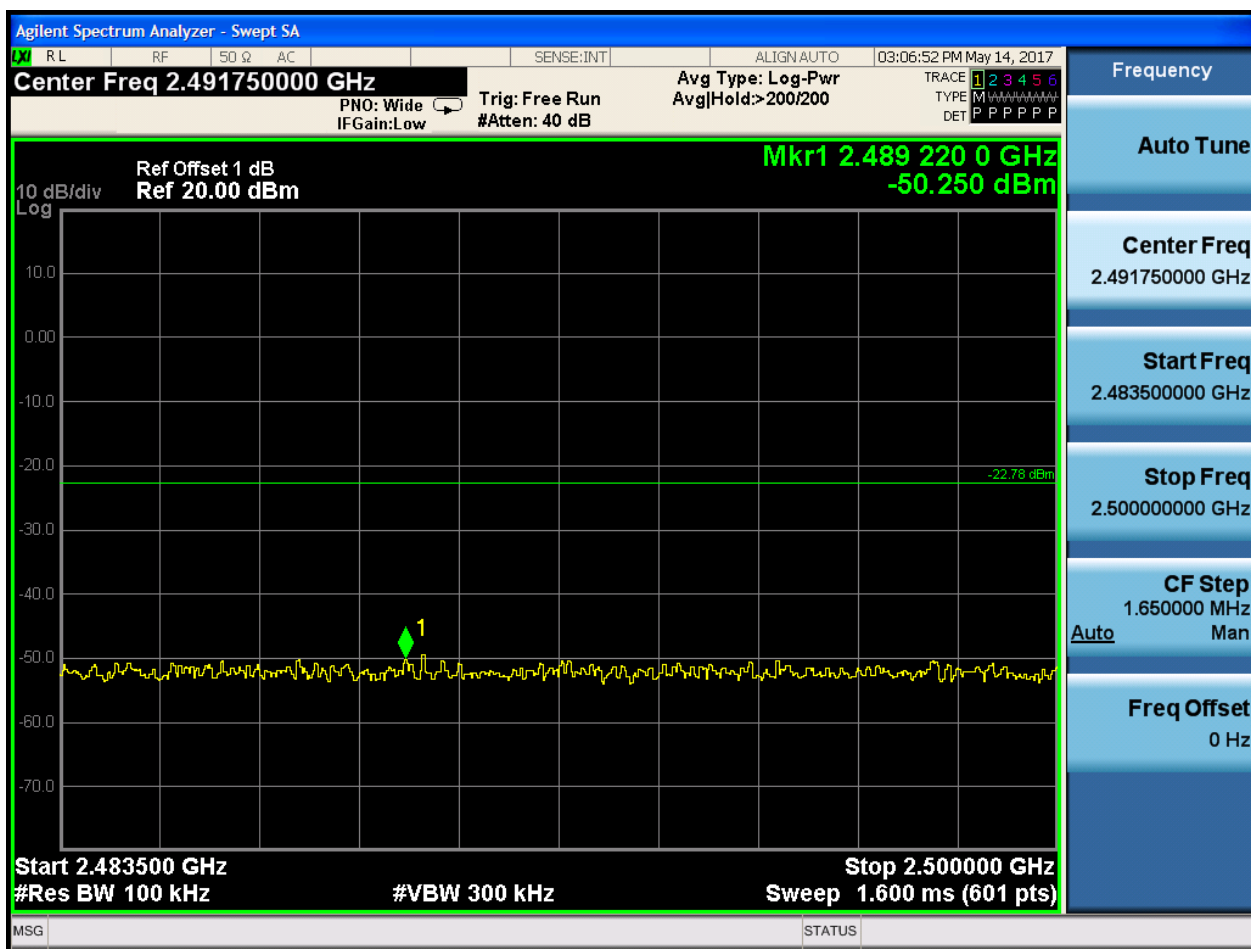
Puw:















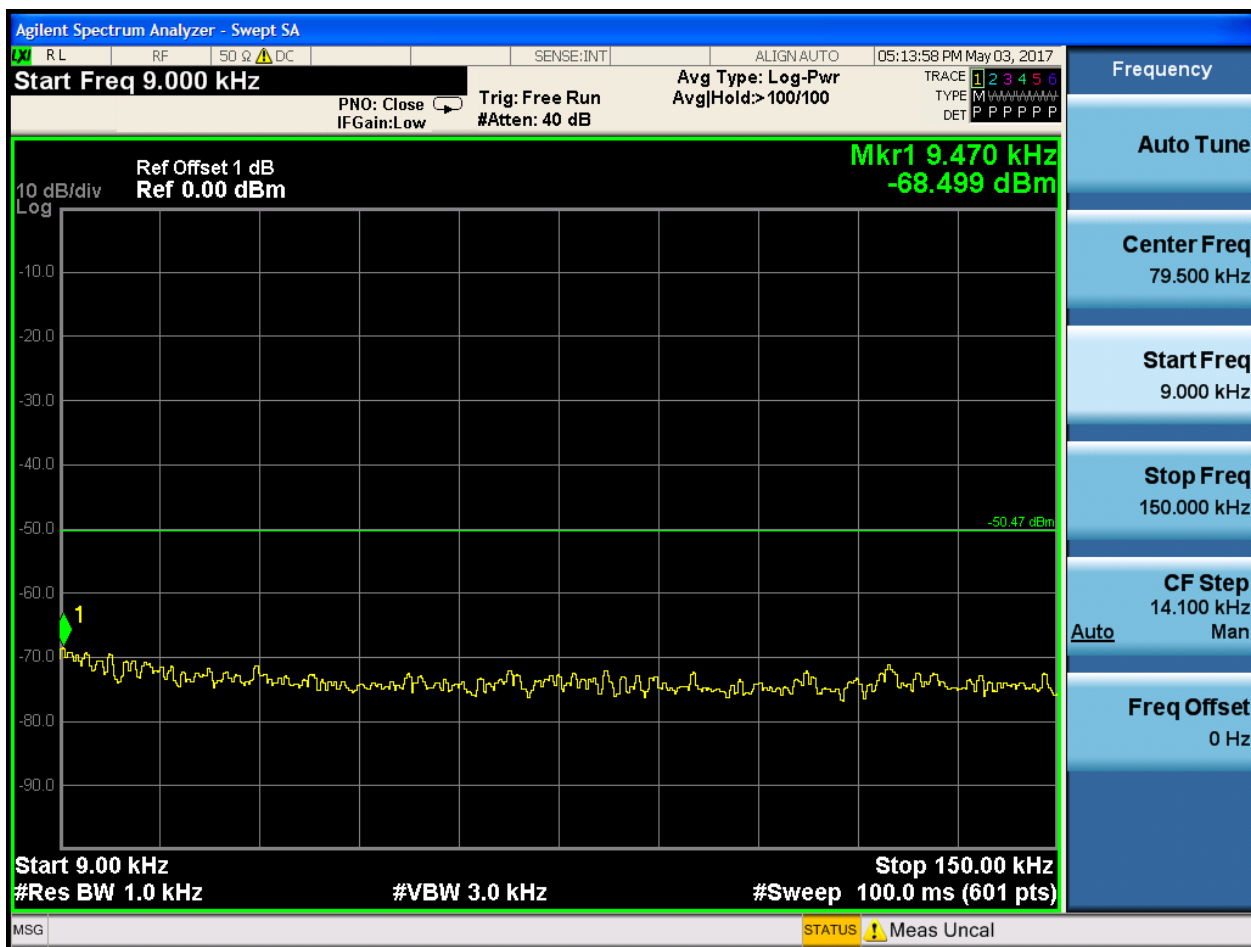
2.3 11B_H@Ant 1

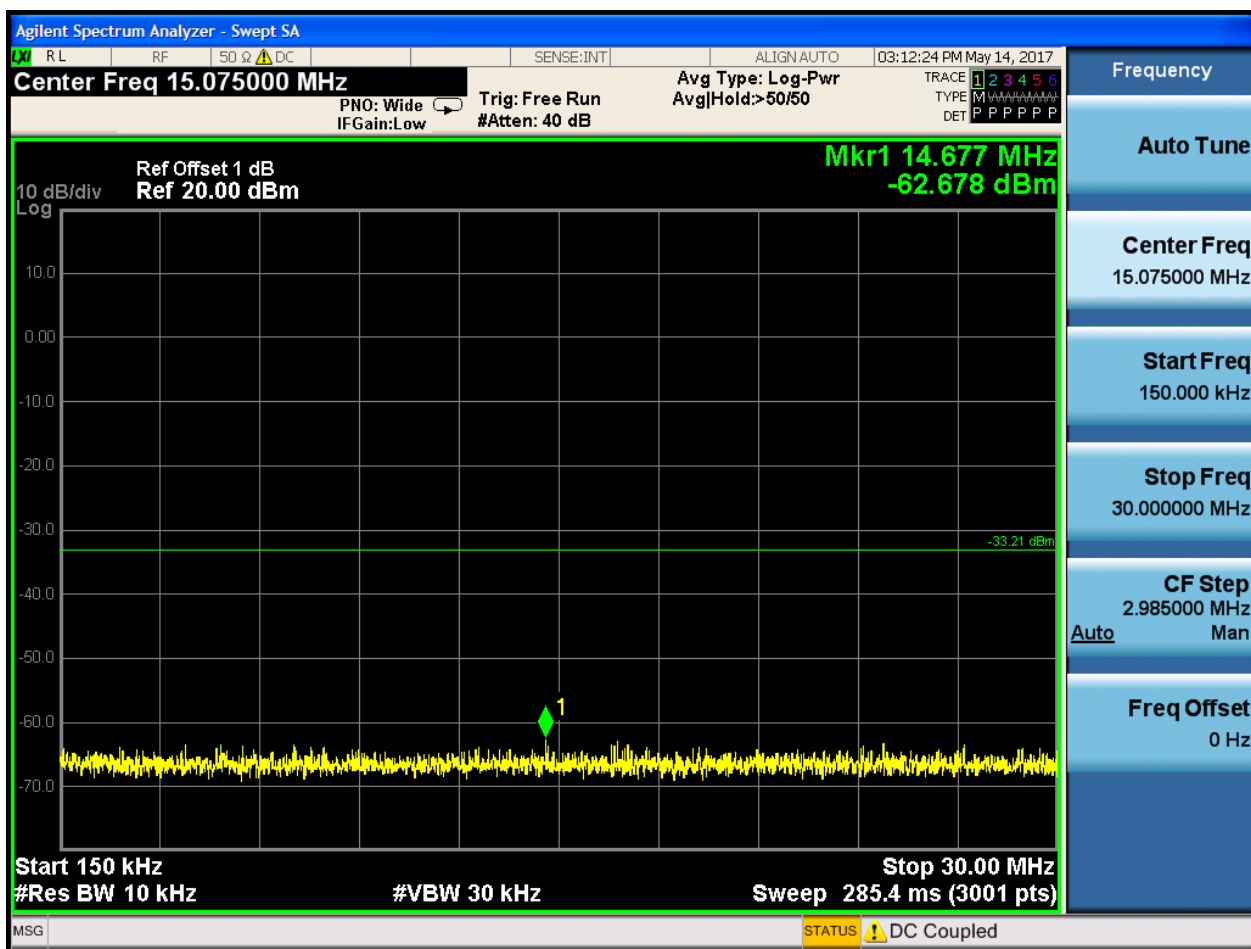
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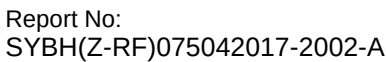
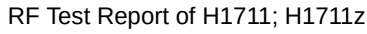


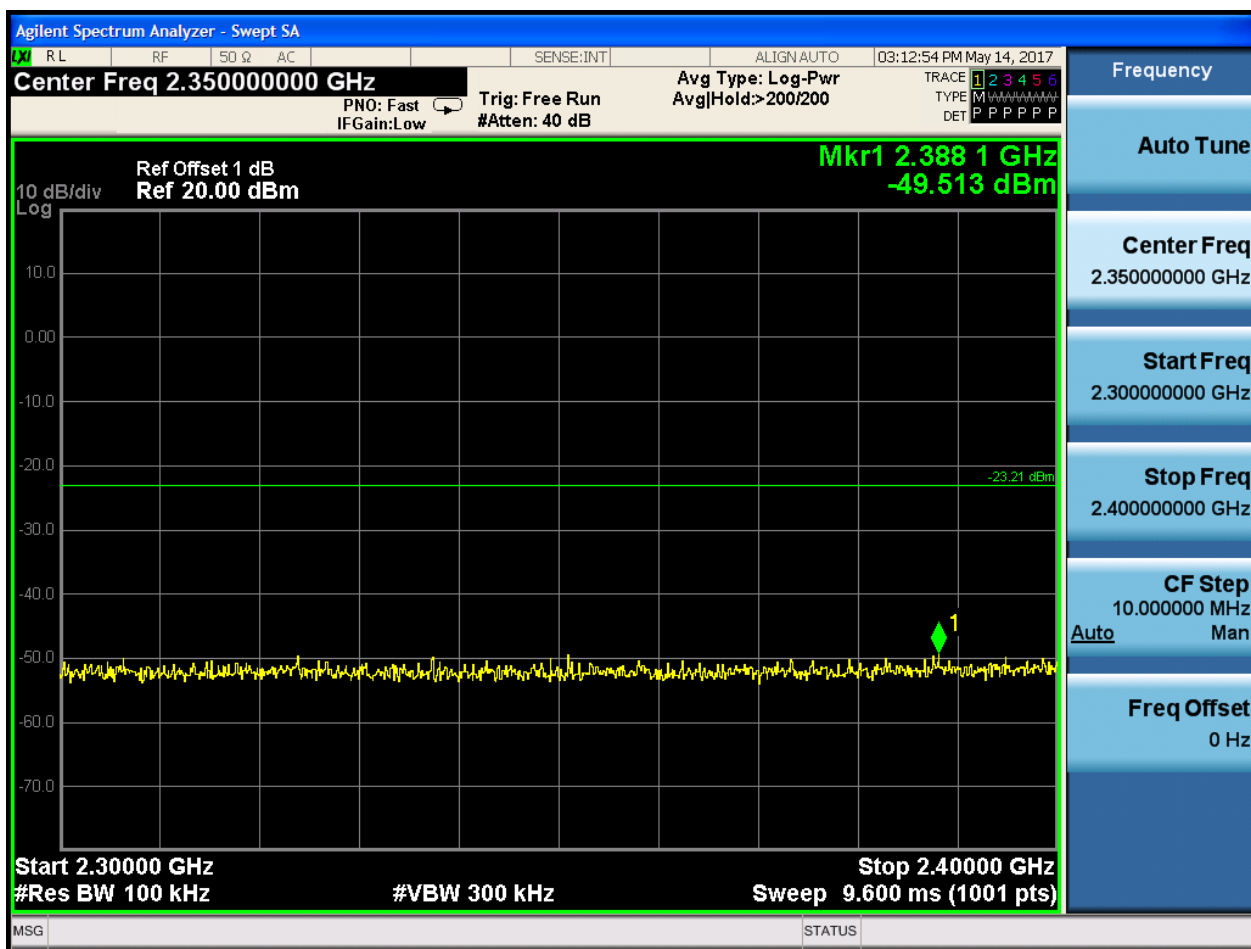


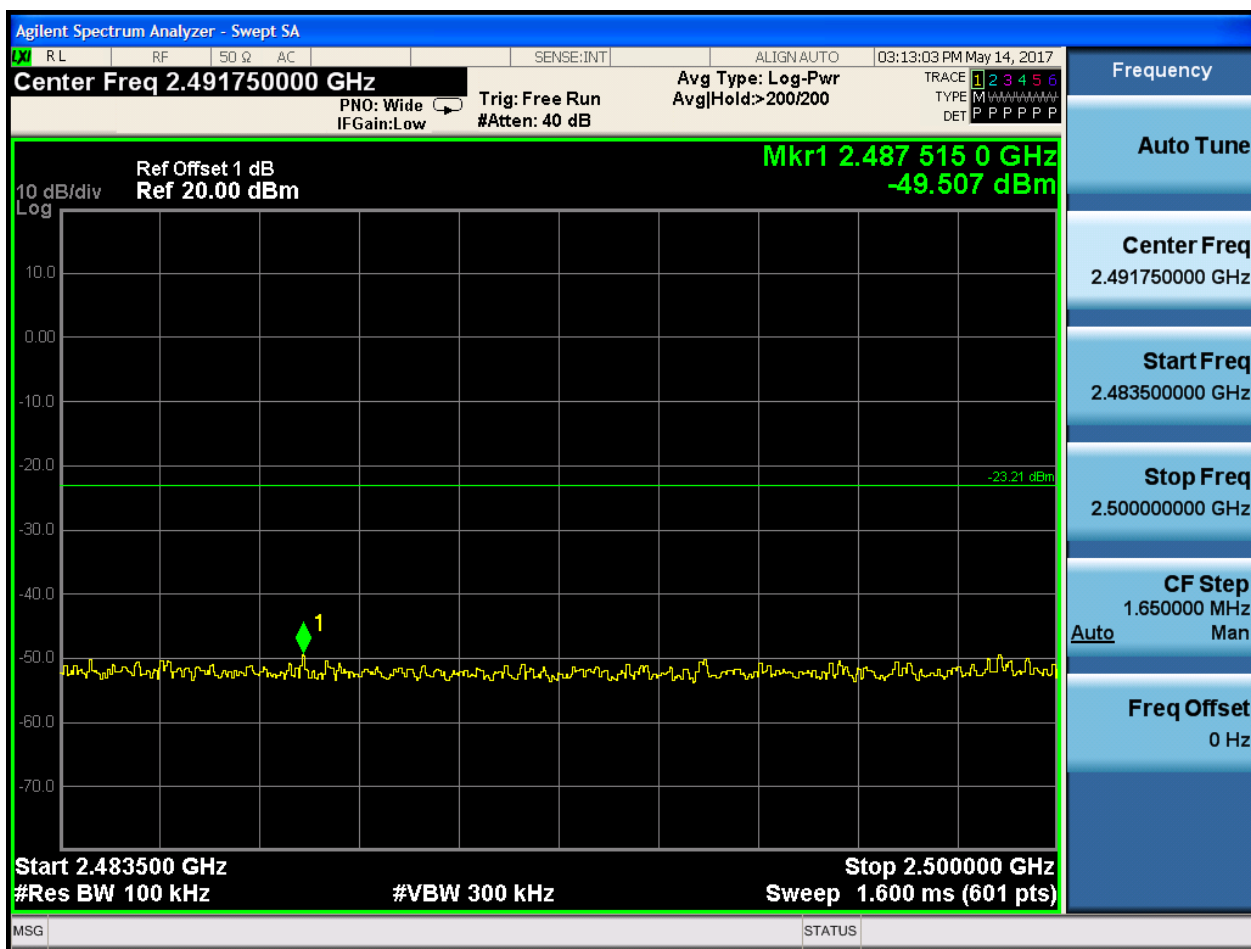
Puw:









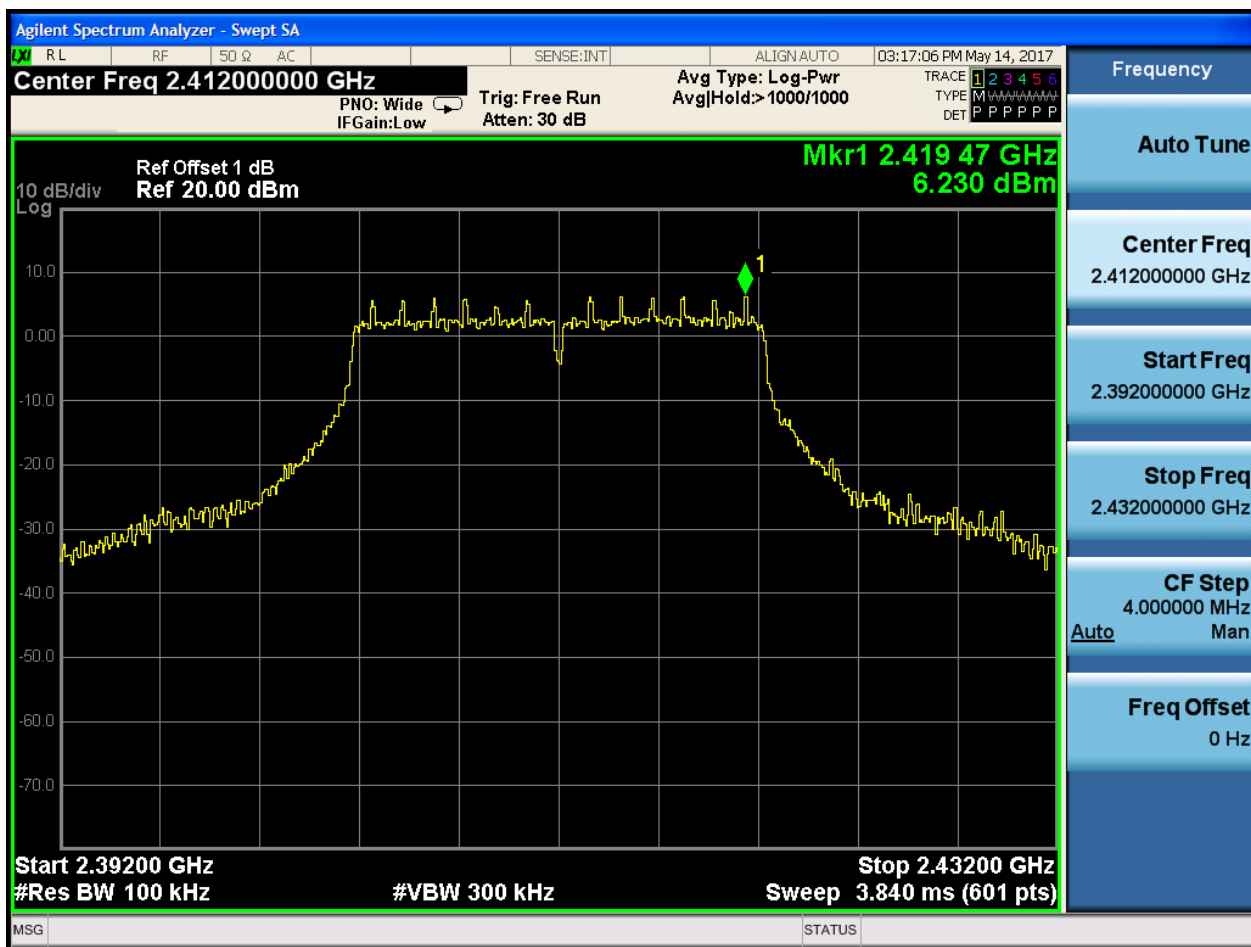






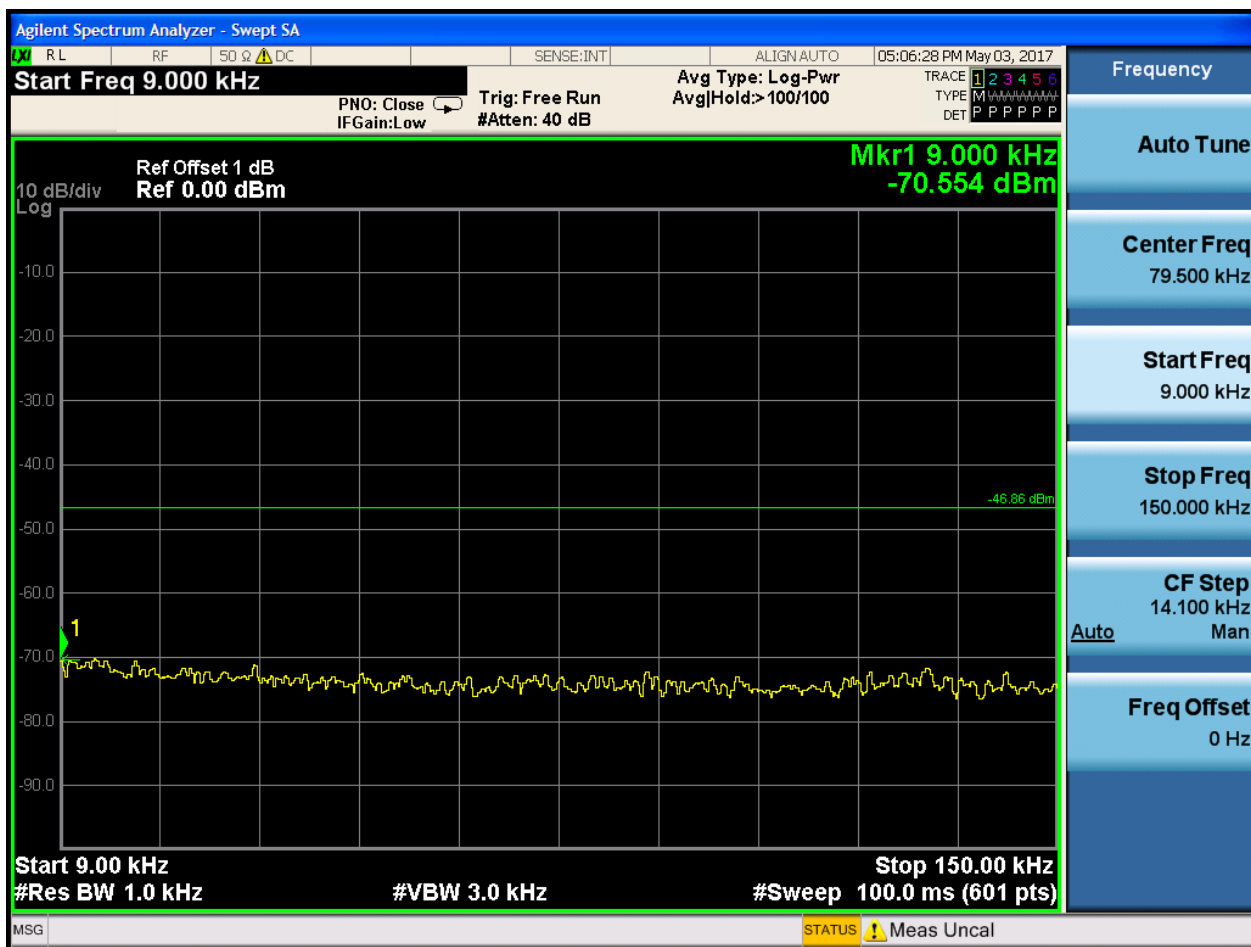
2.4 11G_L@Ant 1

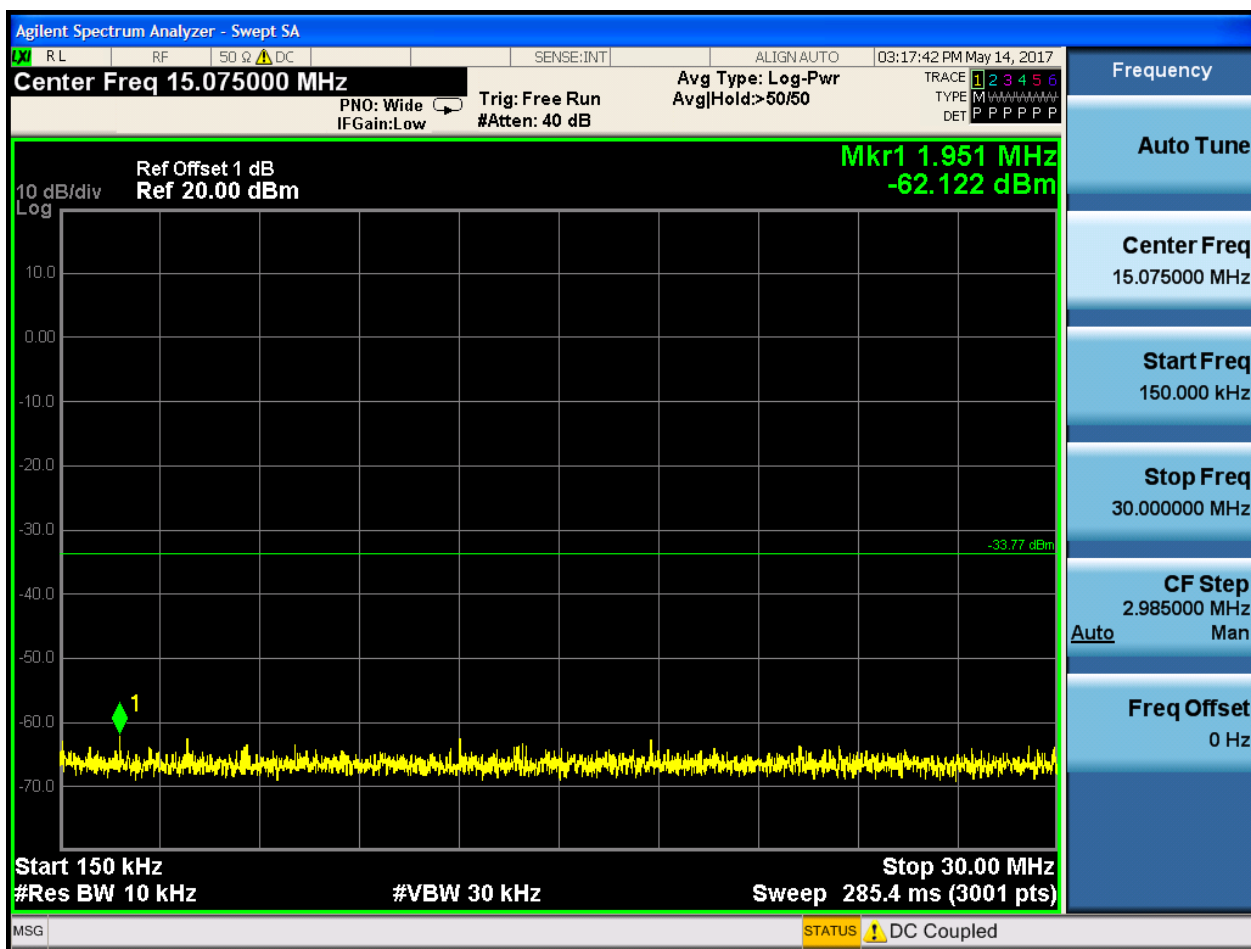
Pref:

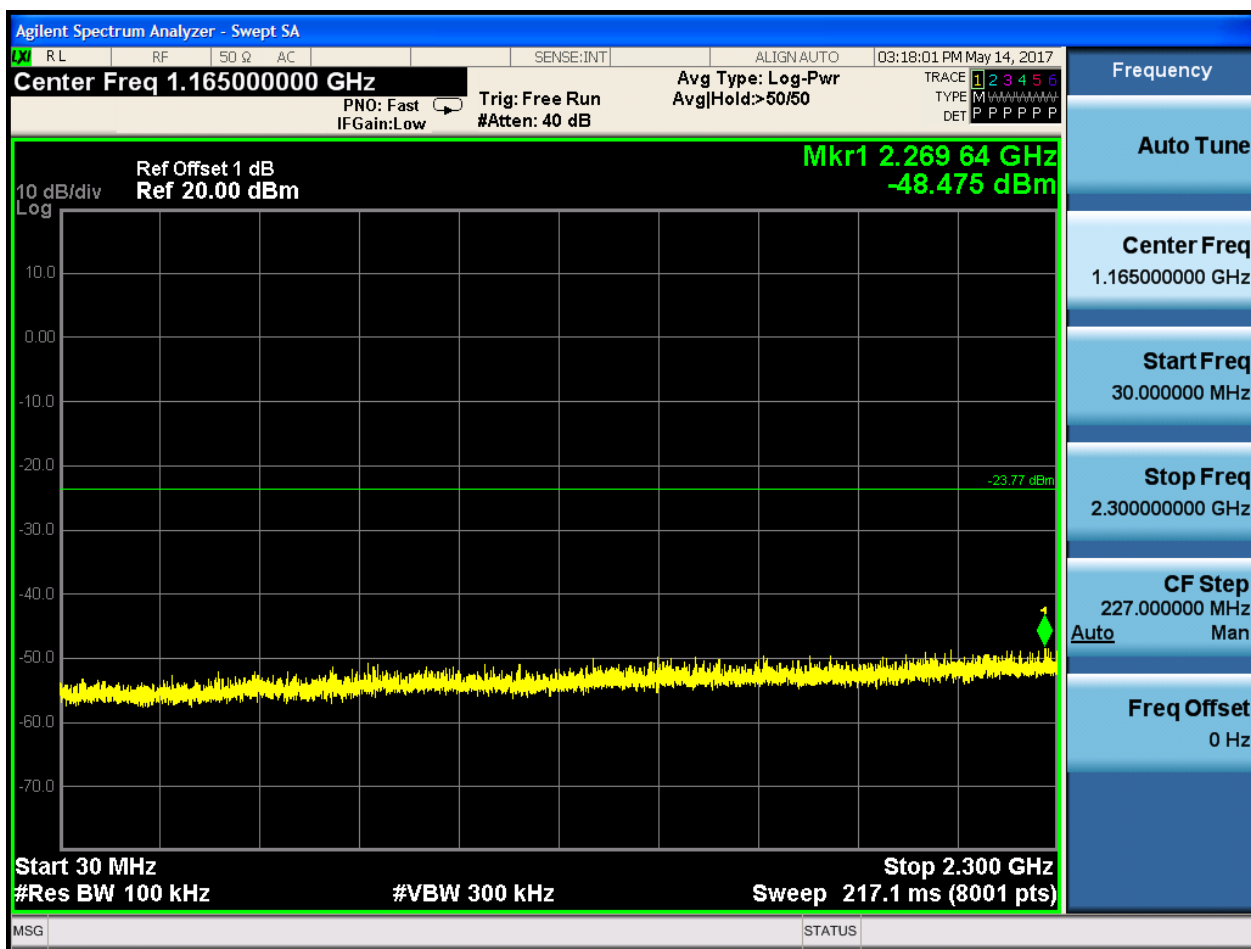


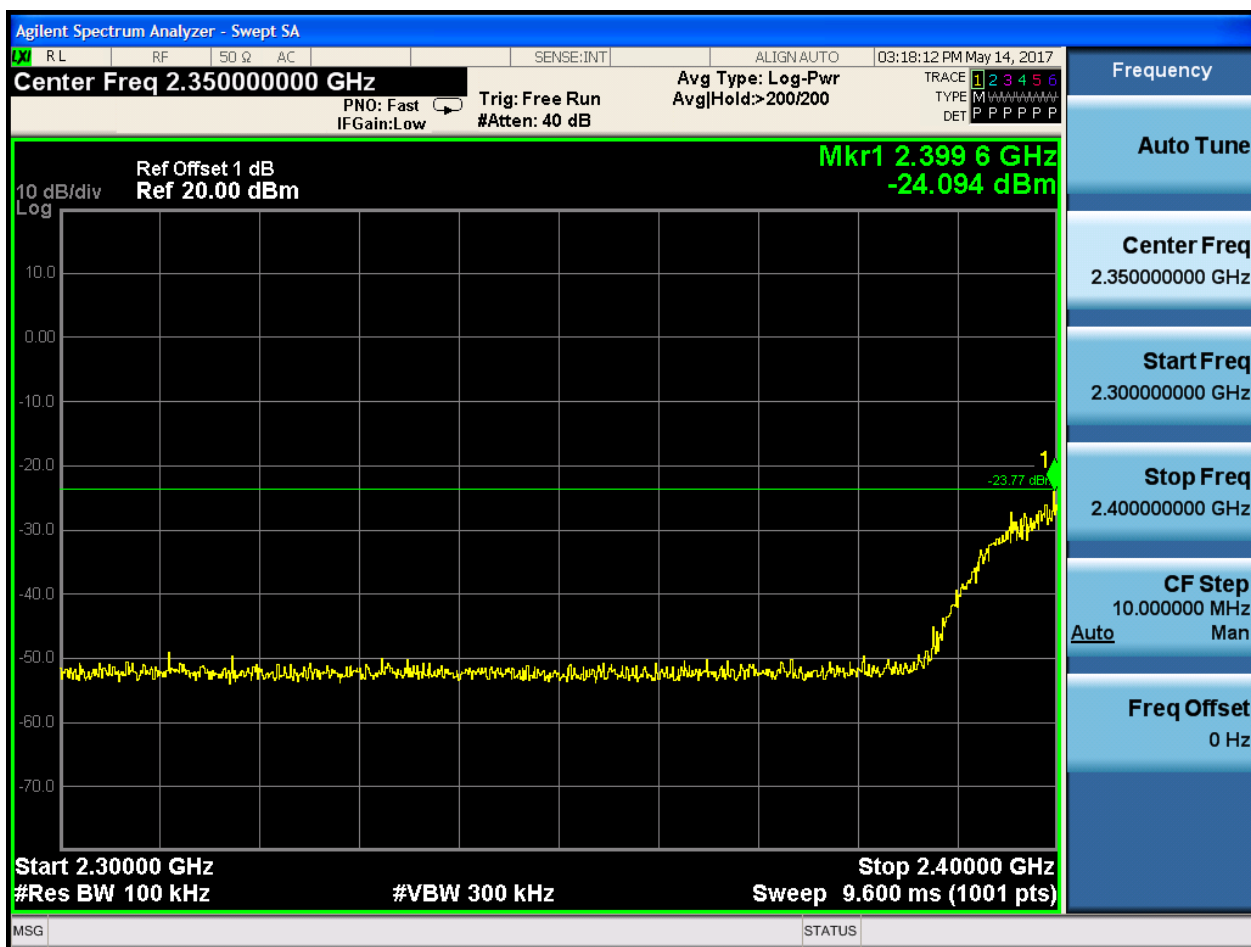


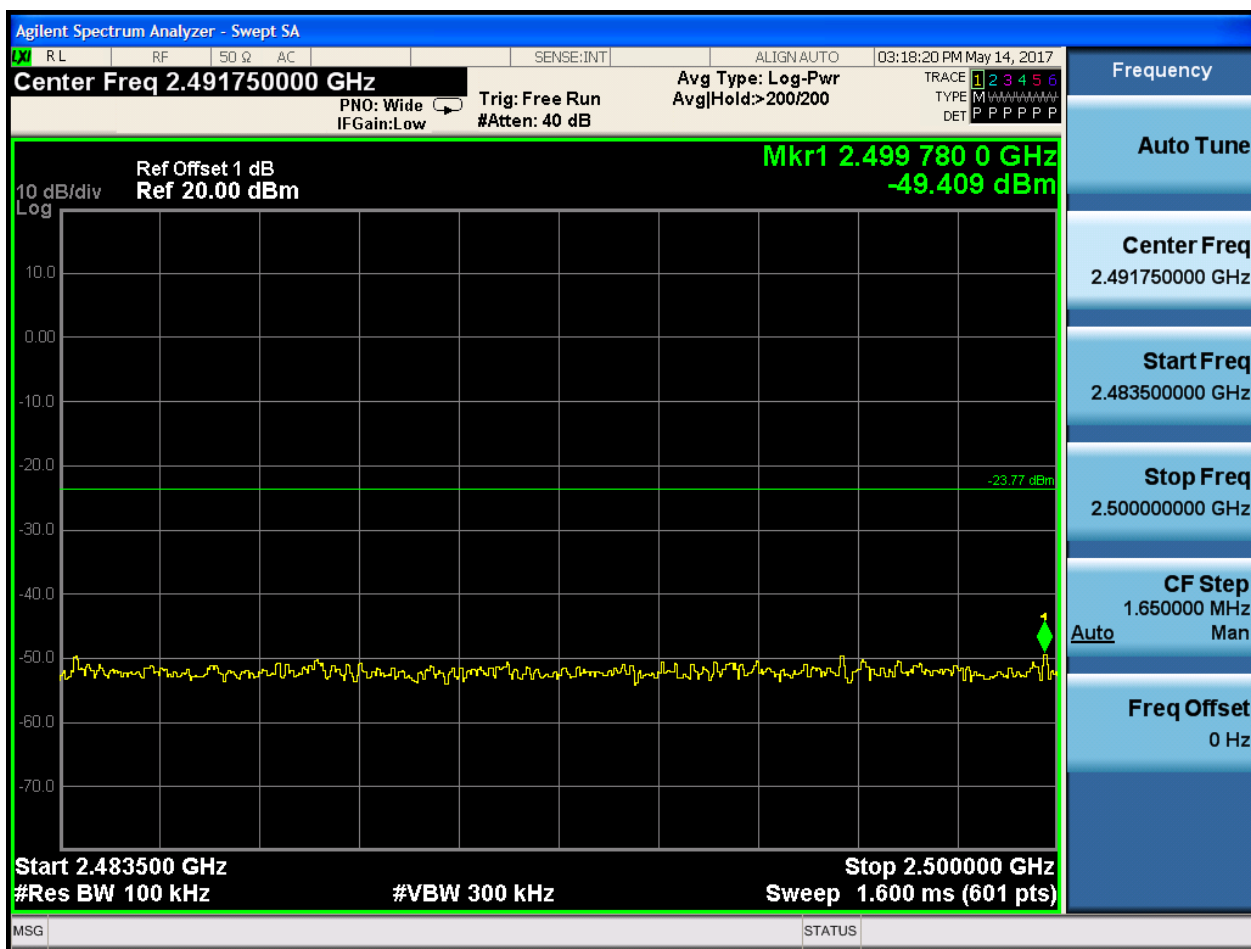
Puw:









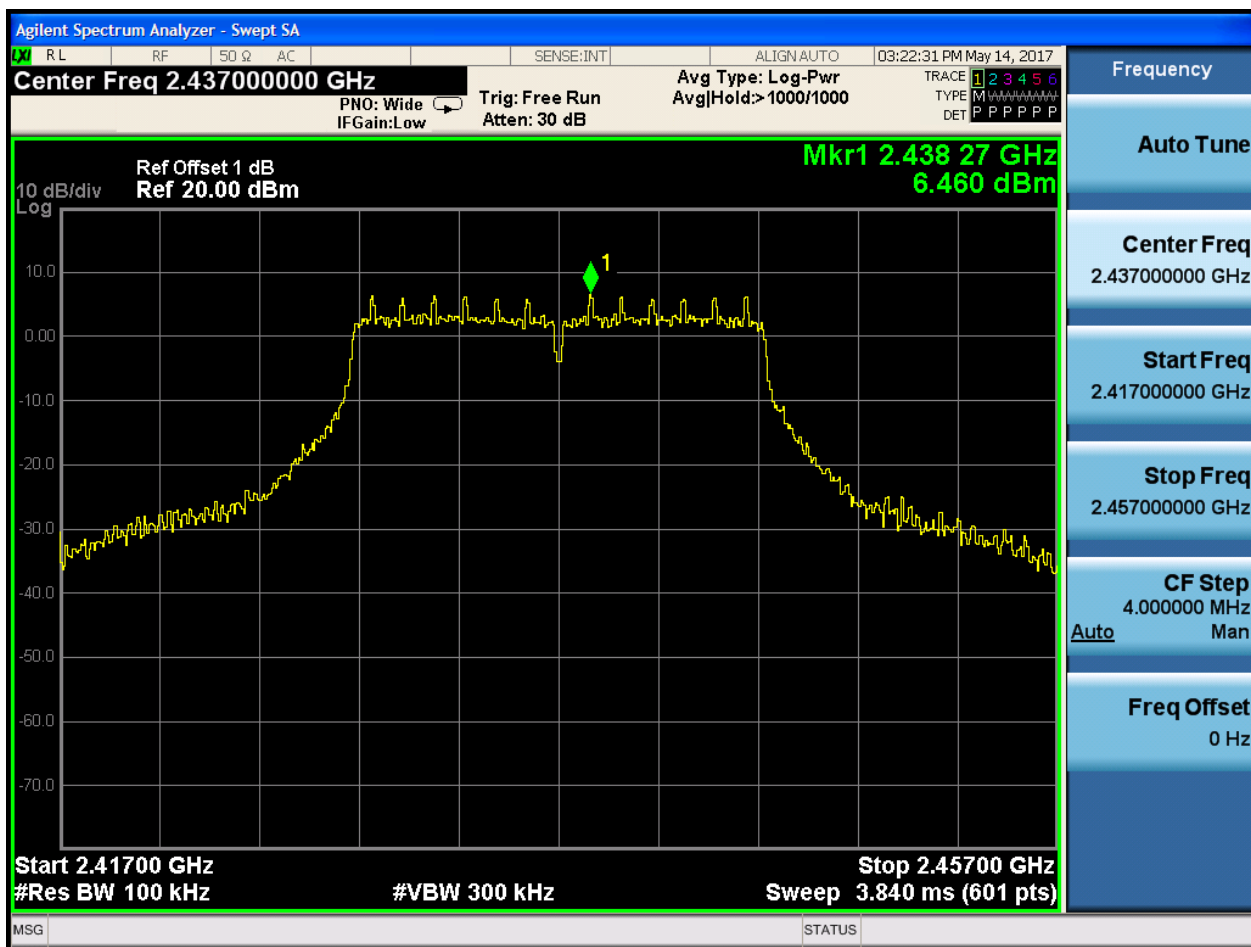






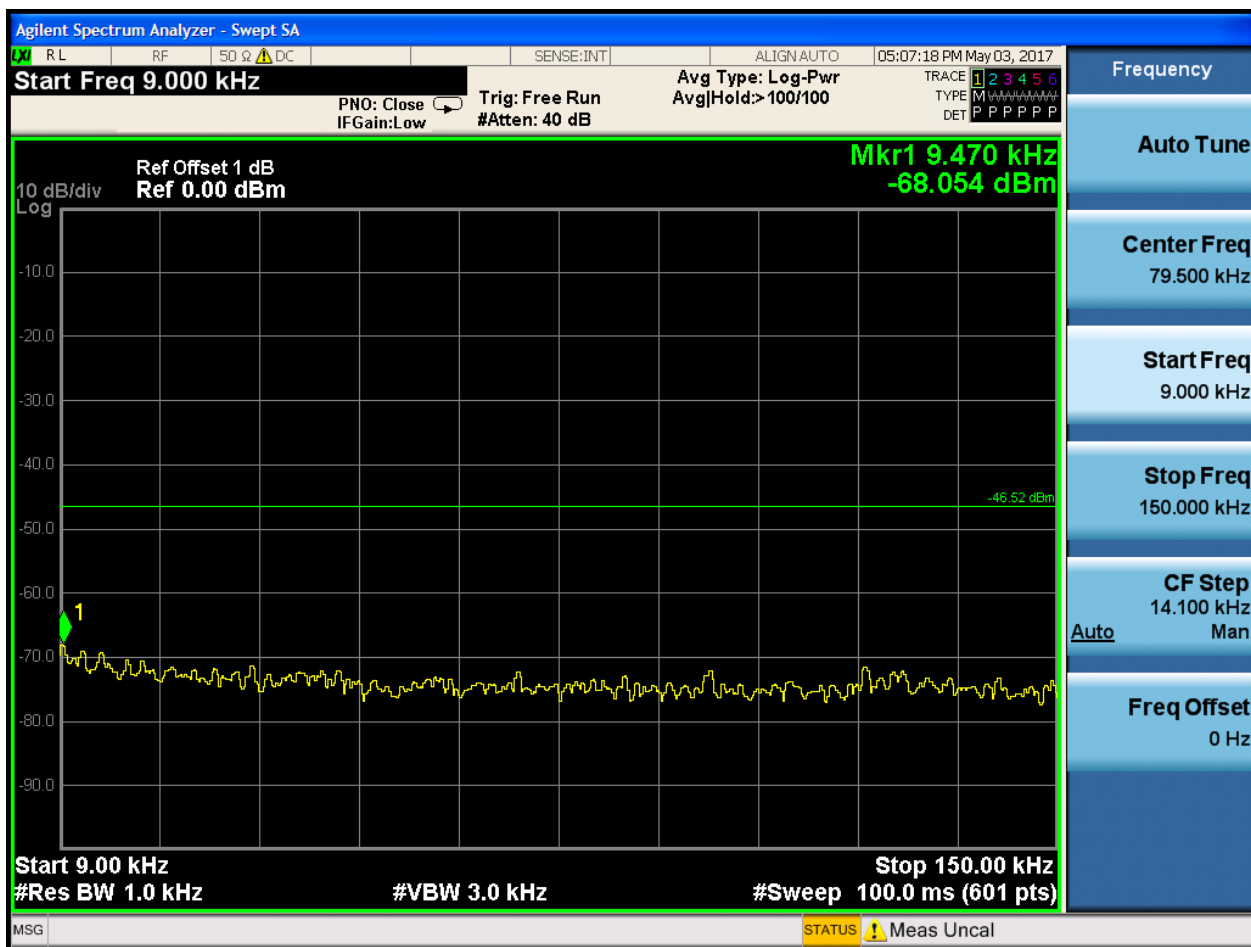
2.5 11G_M@Ant 1

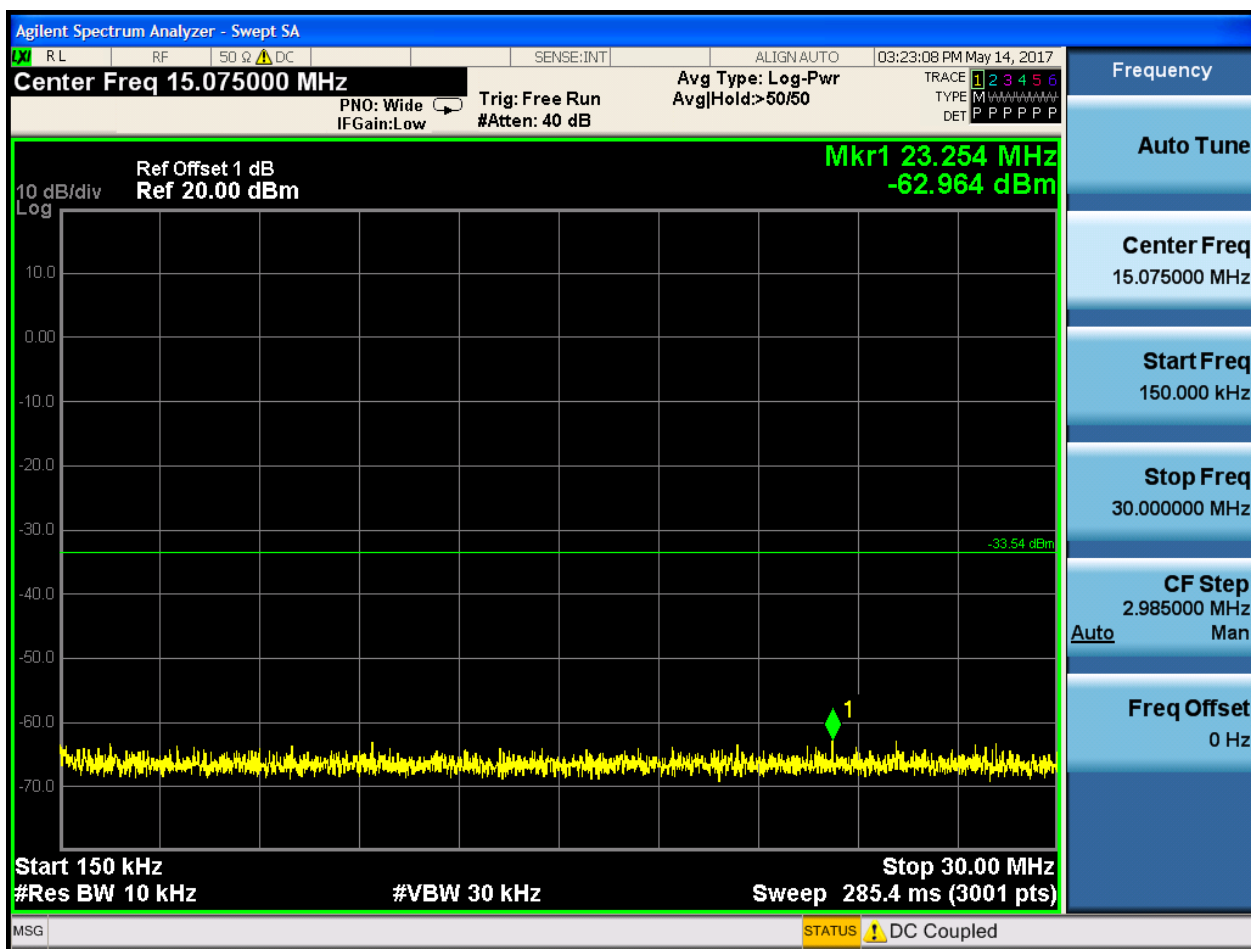
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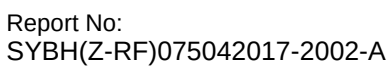
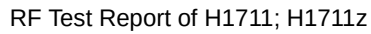


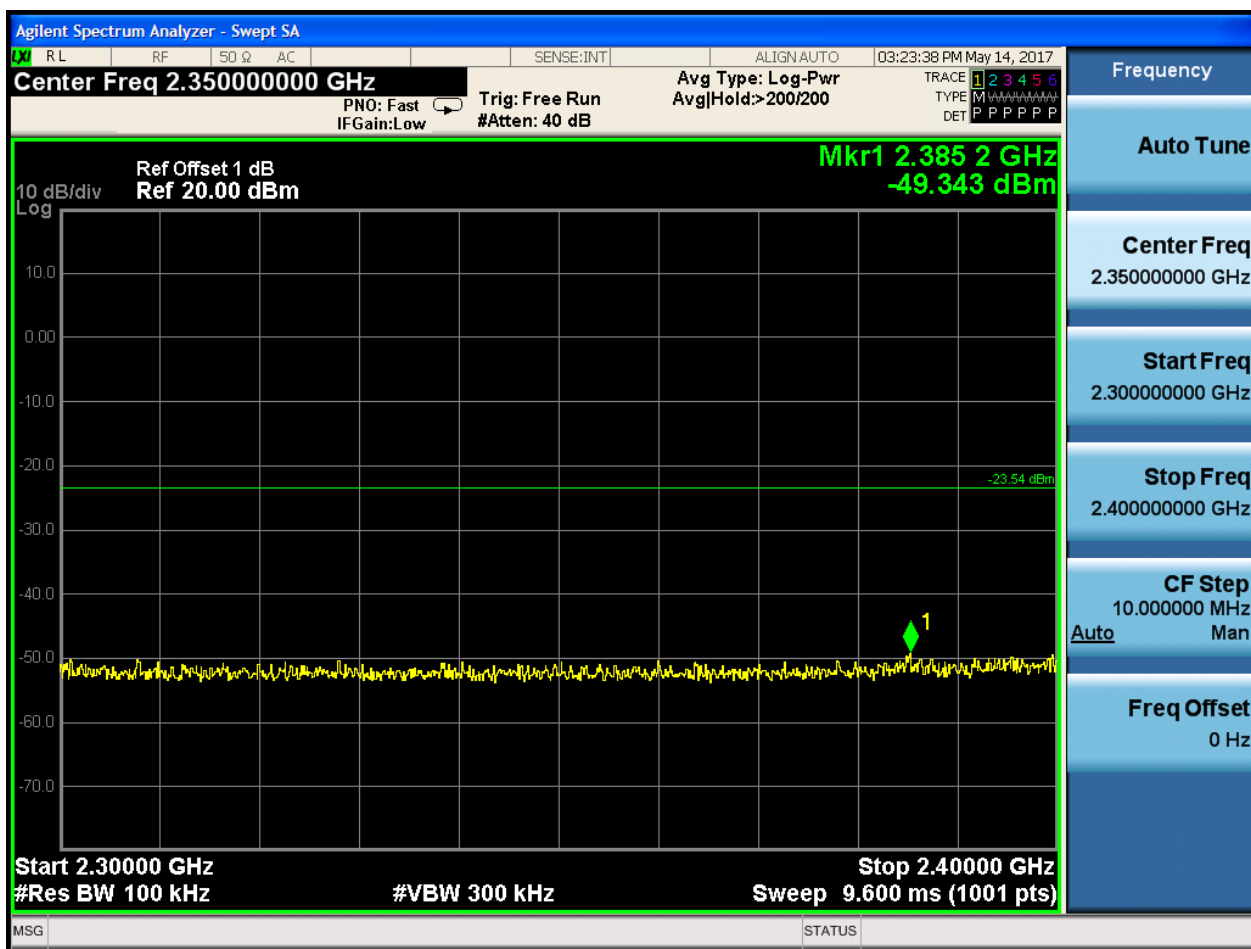


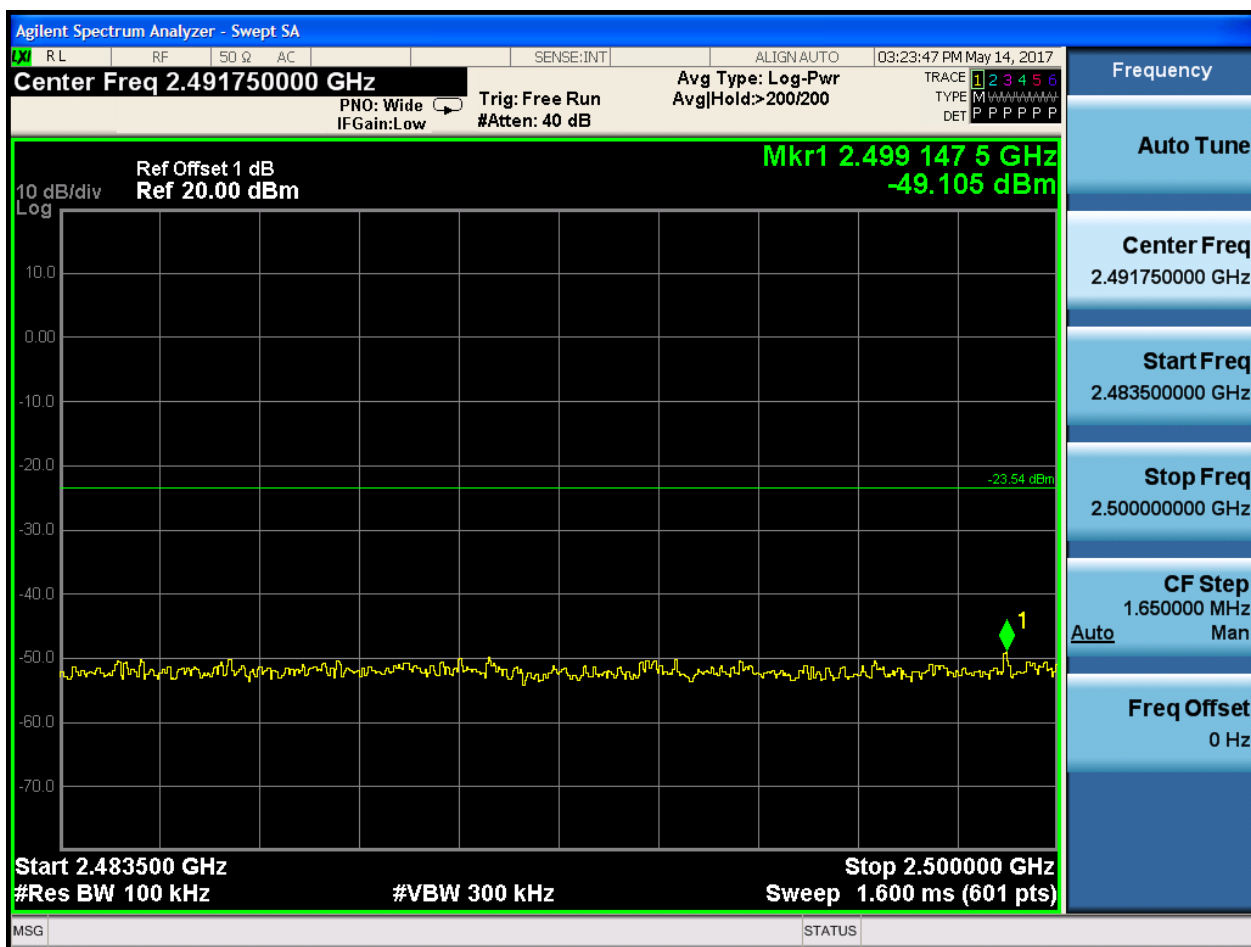
Puw:















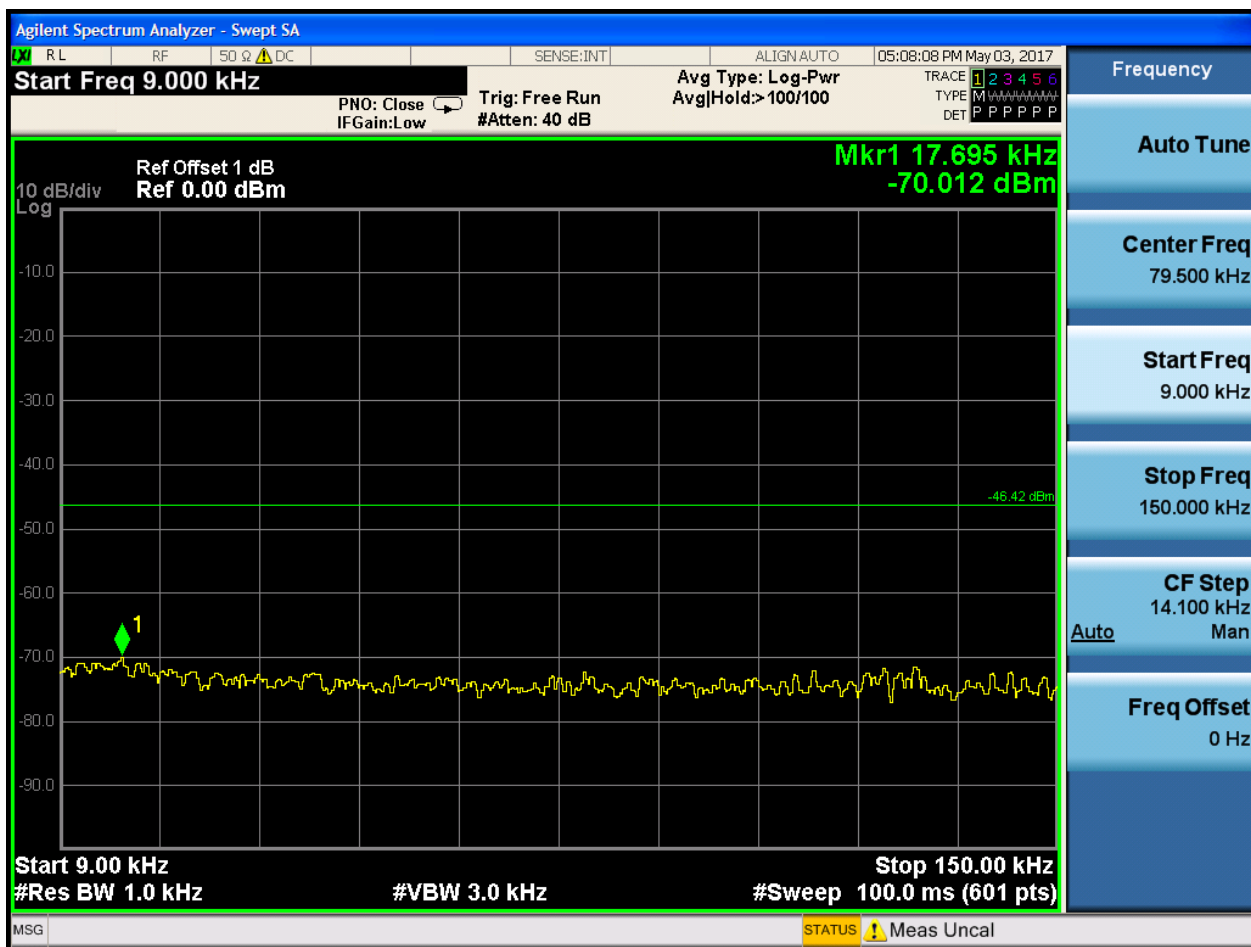
2.6 11G_H@Ant 1

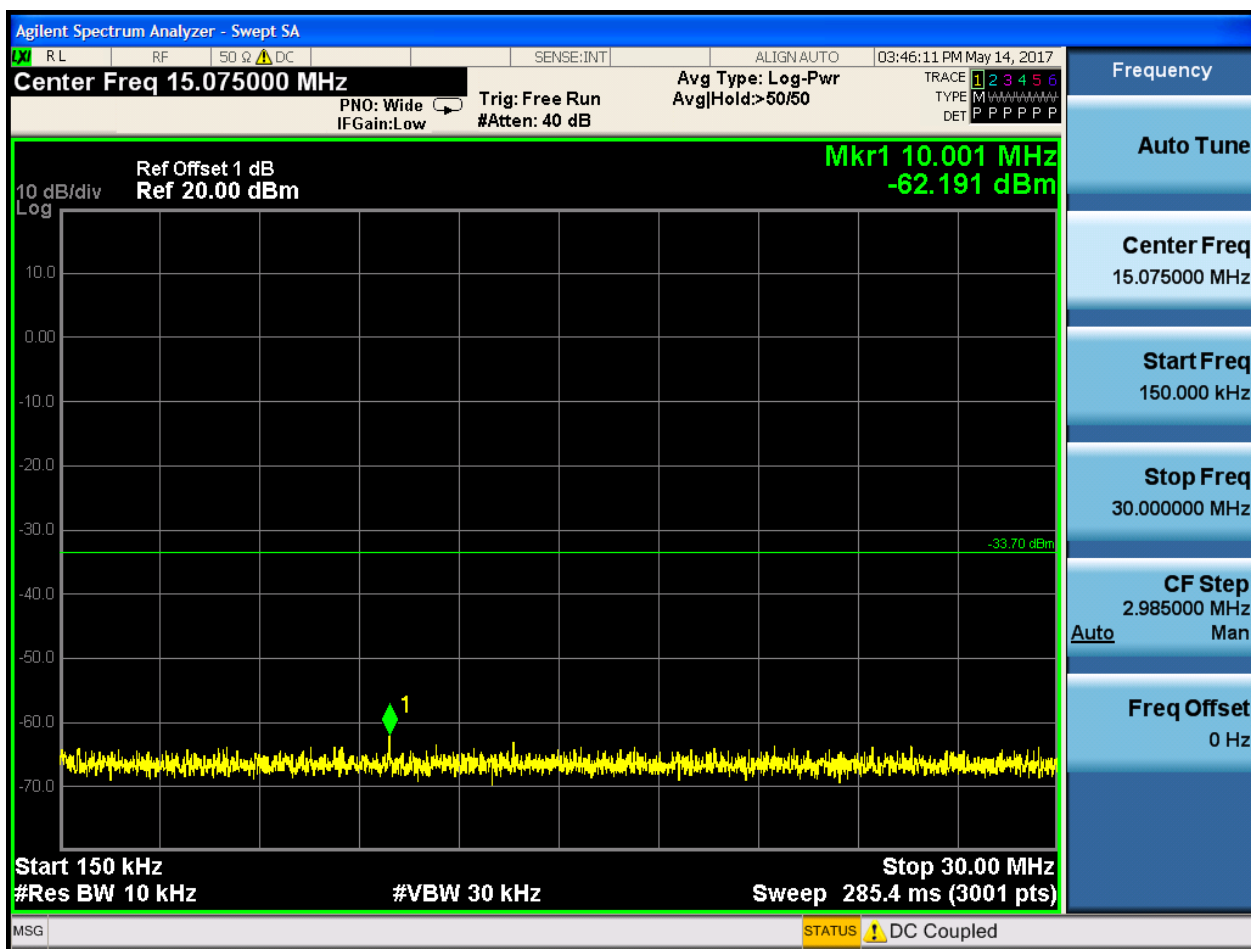
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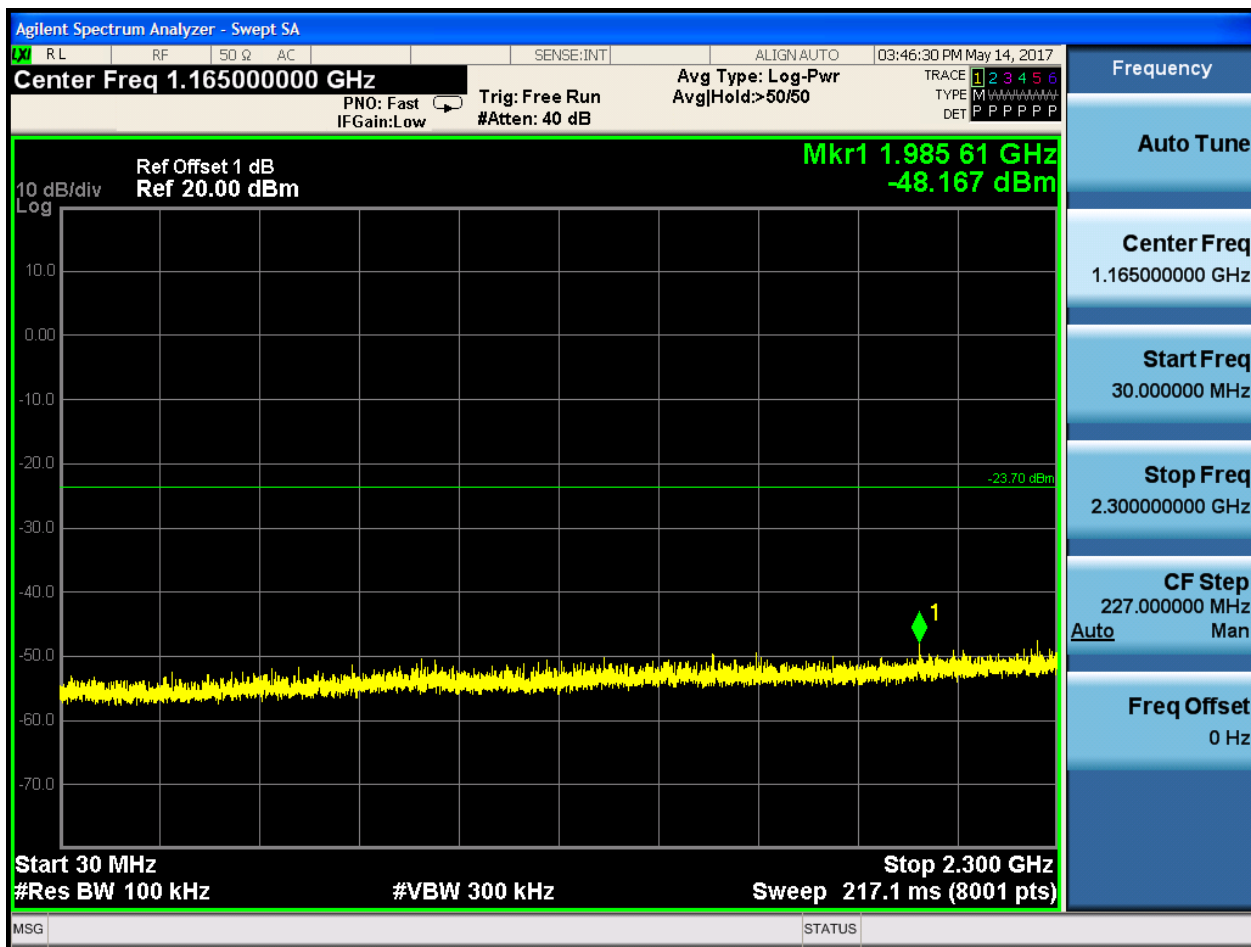


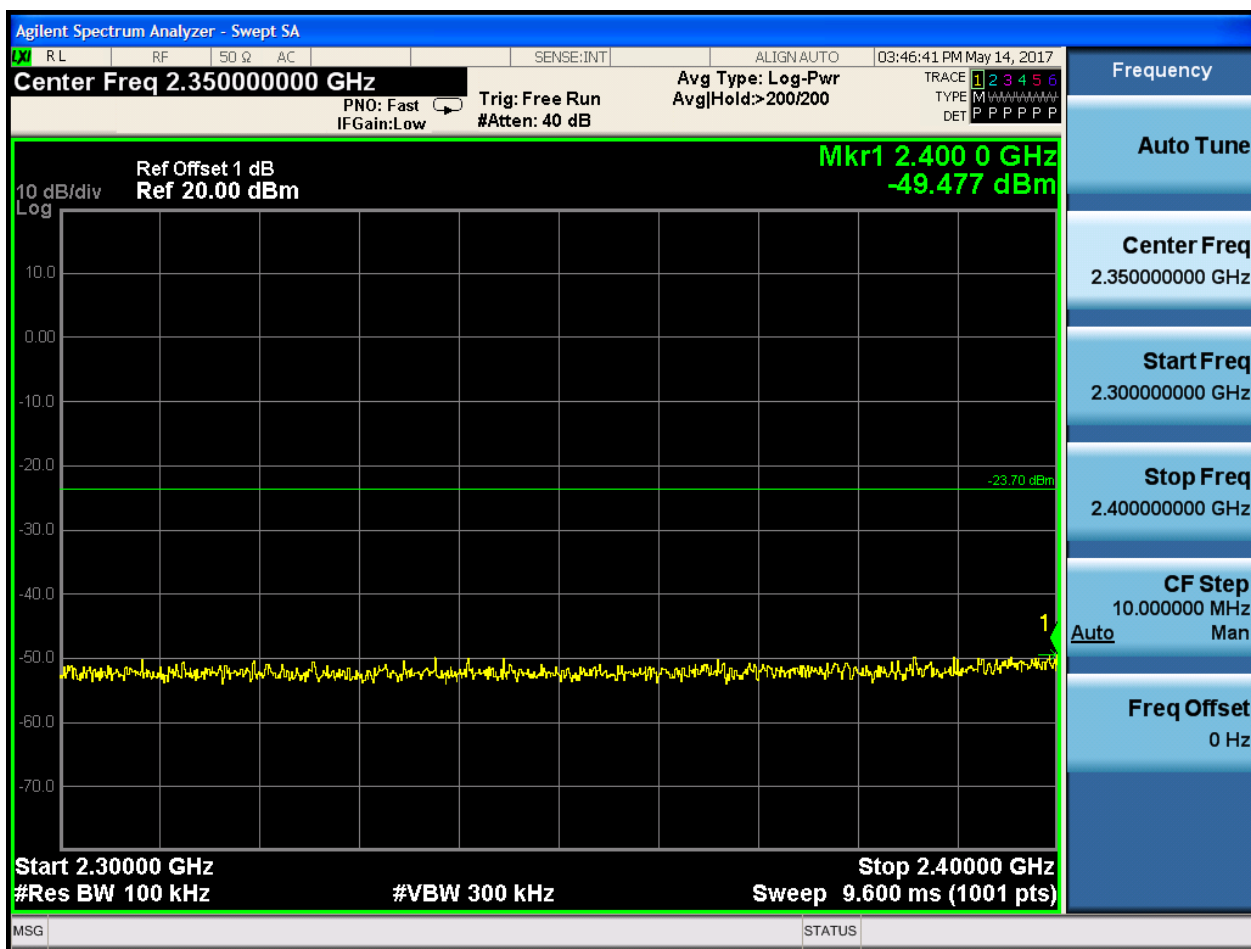


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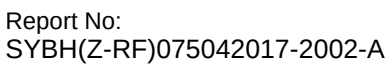
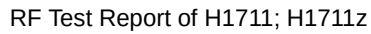








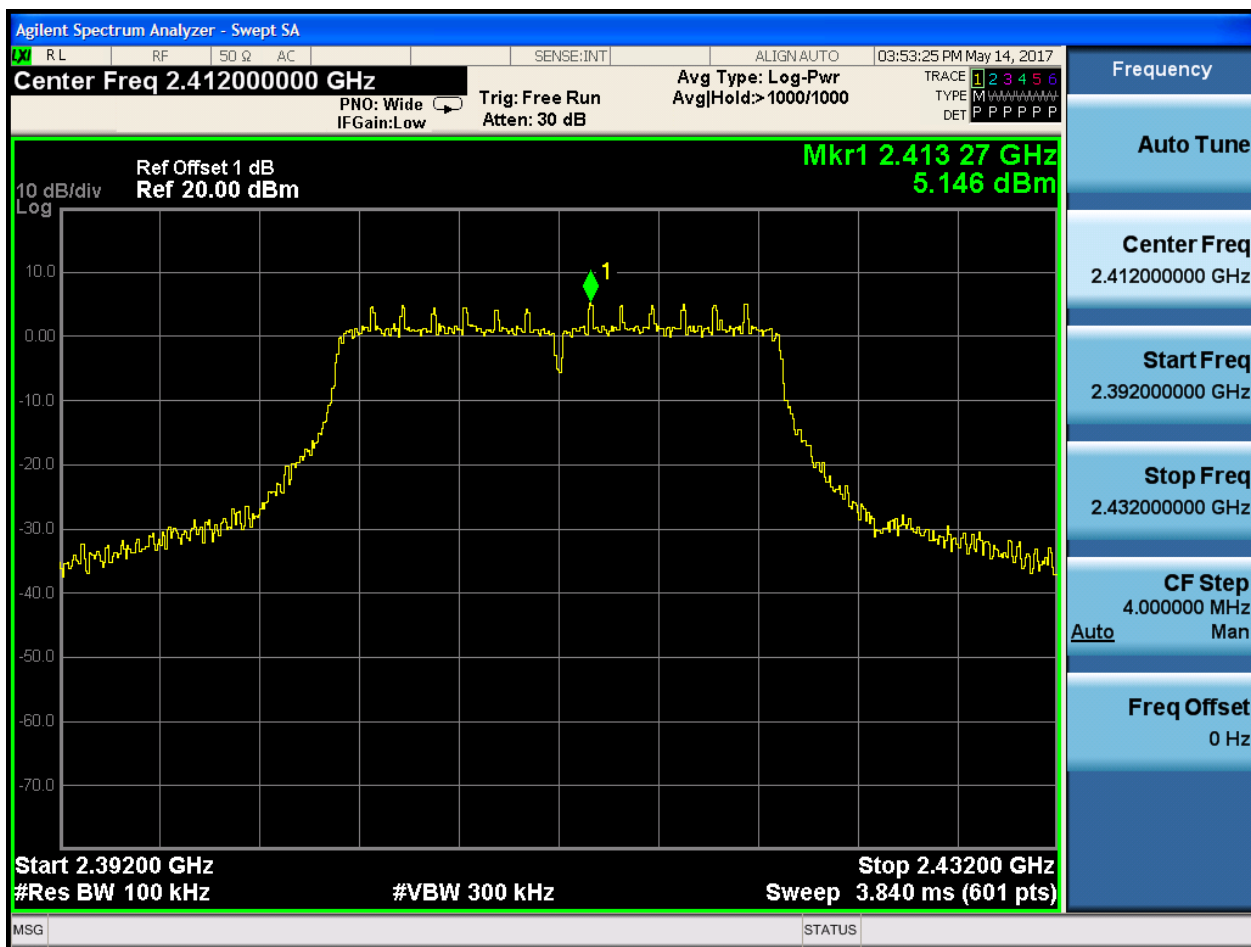






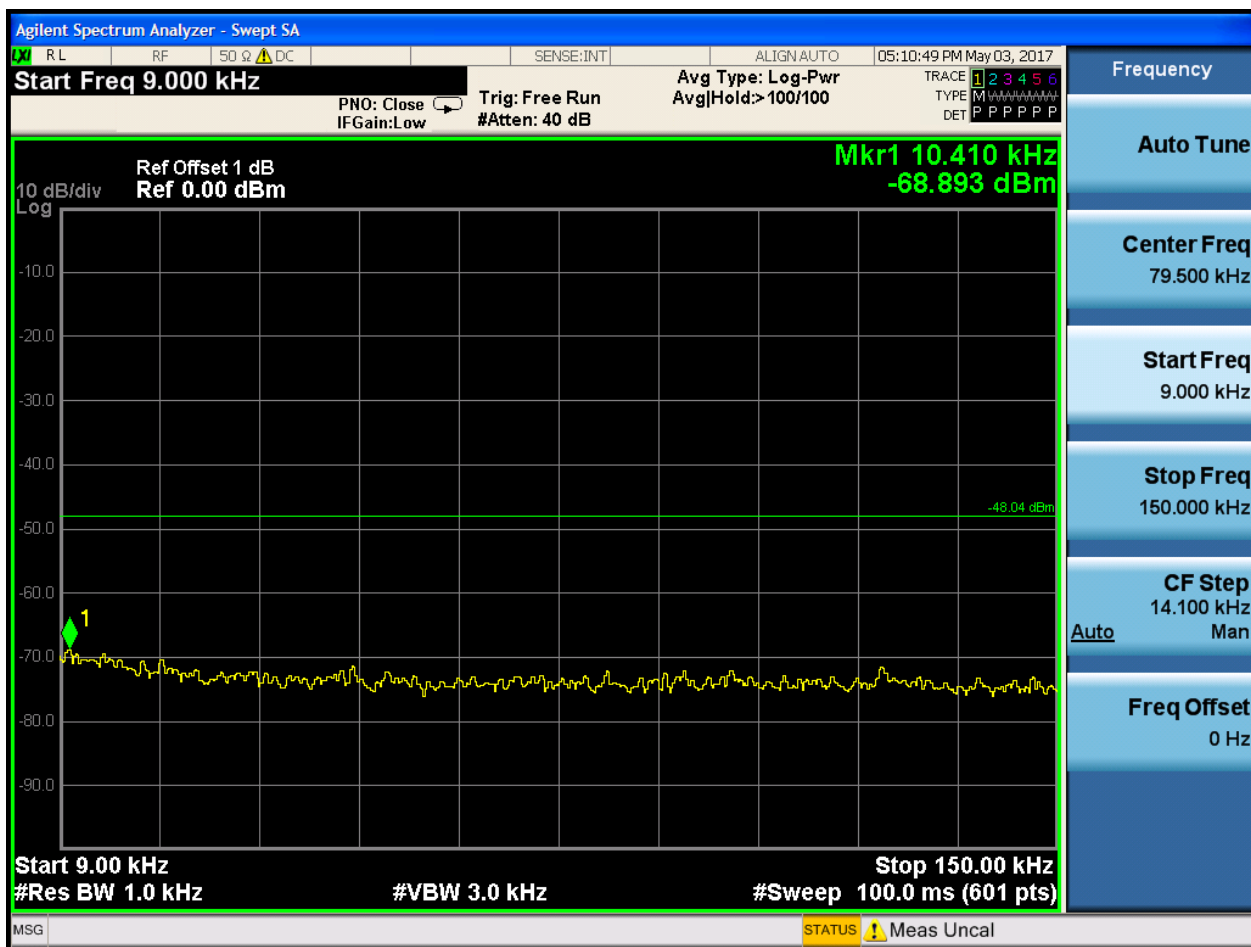
2.7 11N20_L@Ant 1

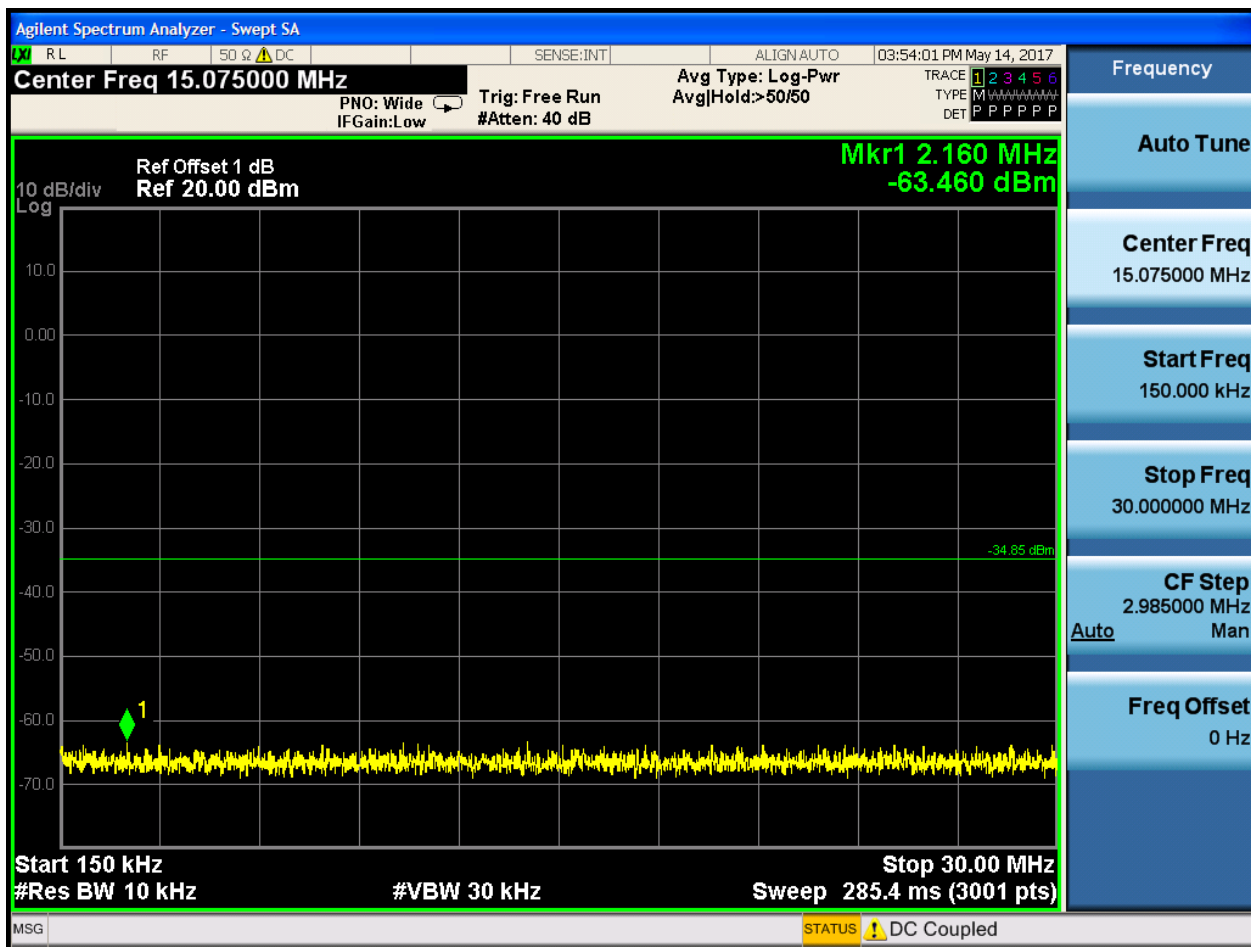
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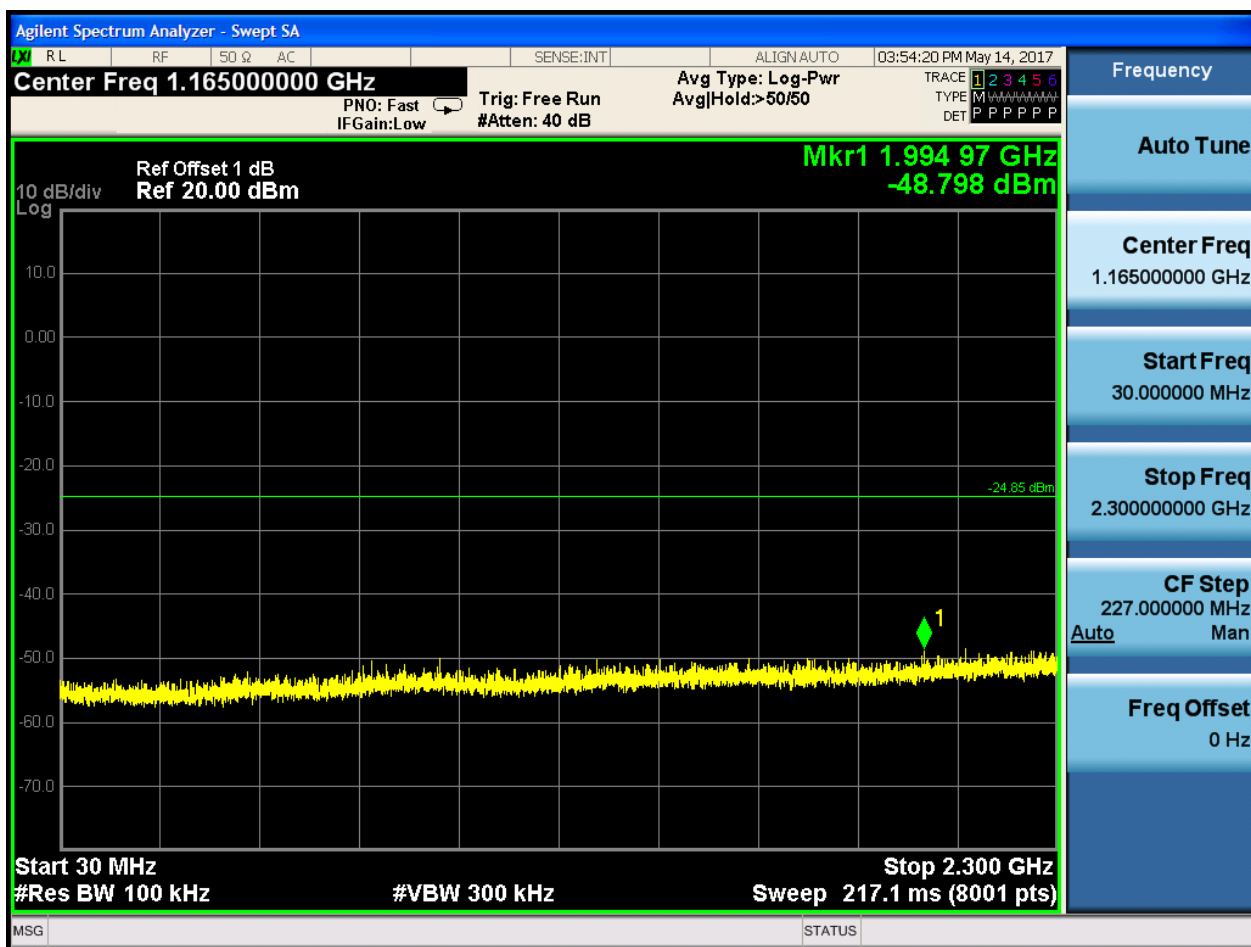


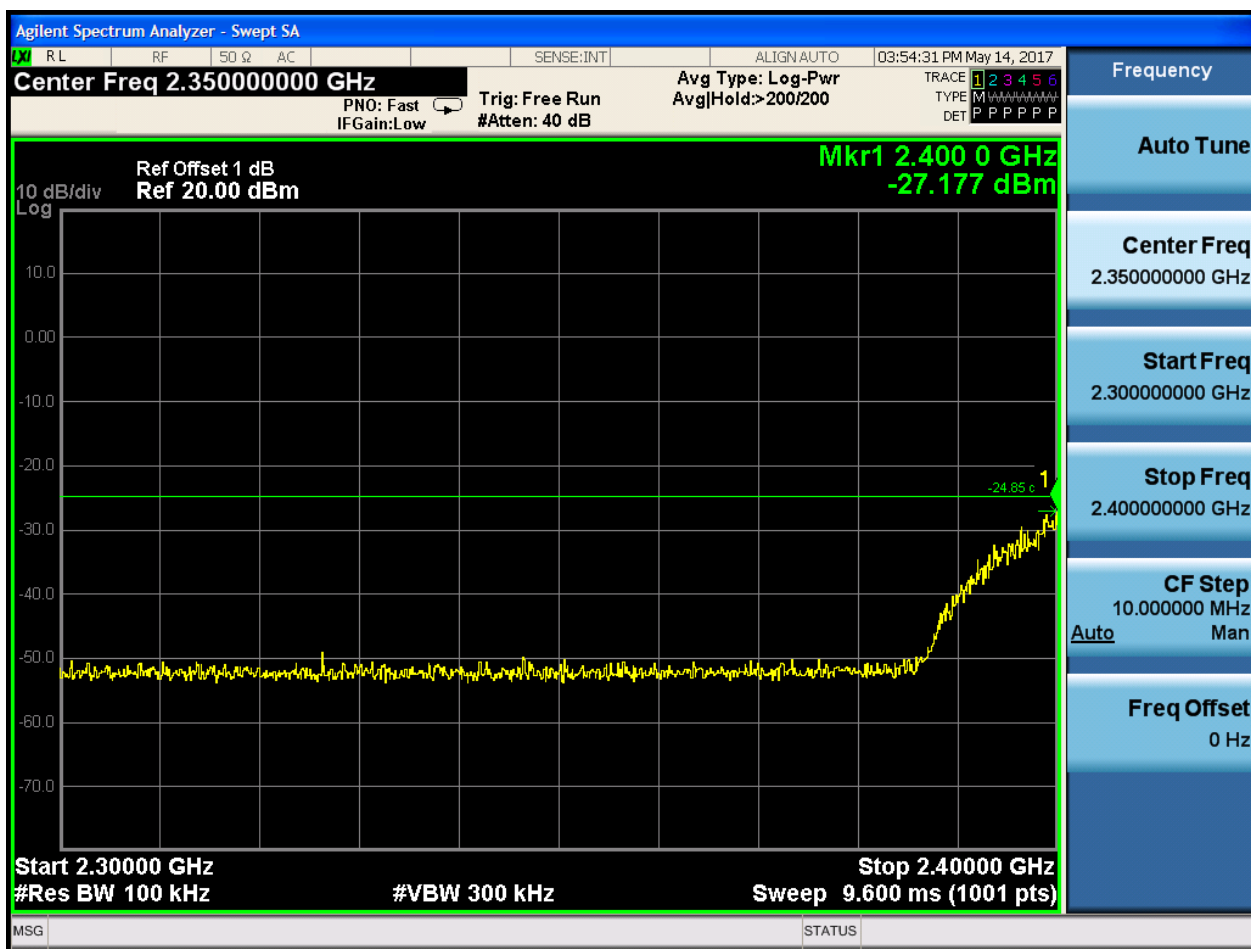


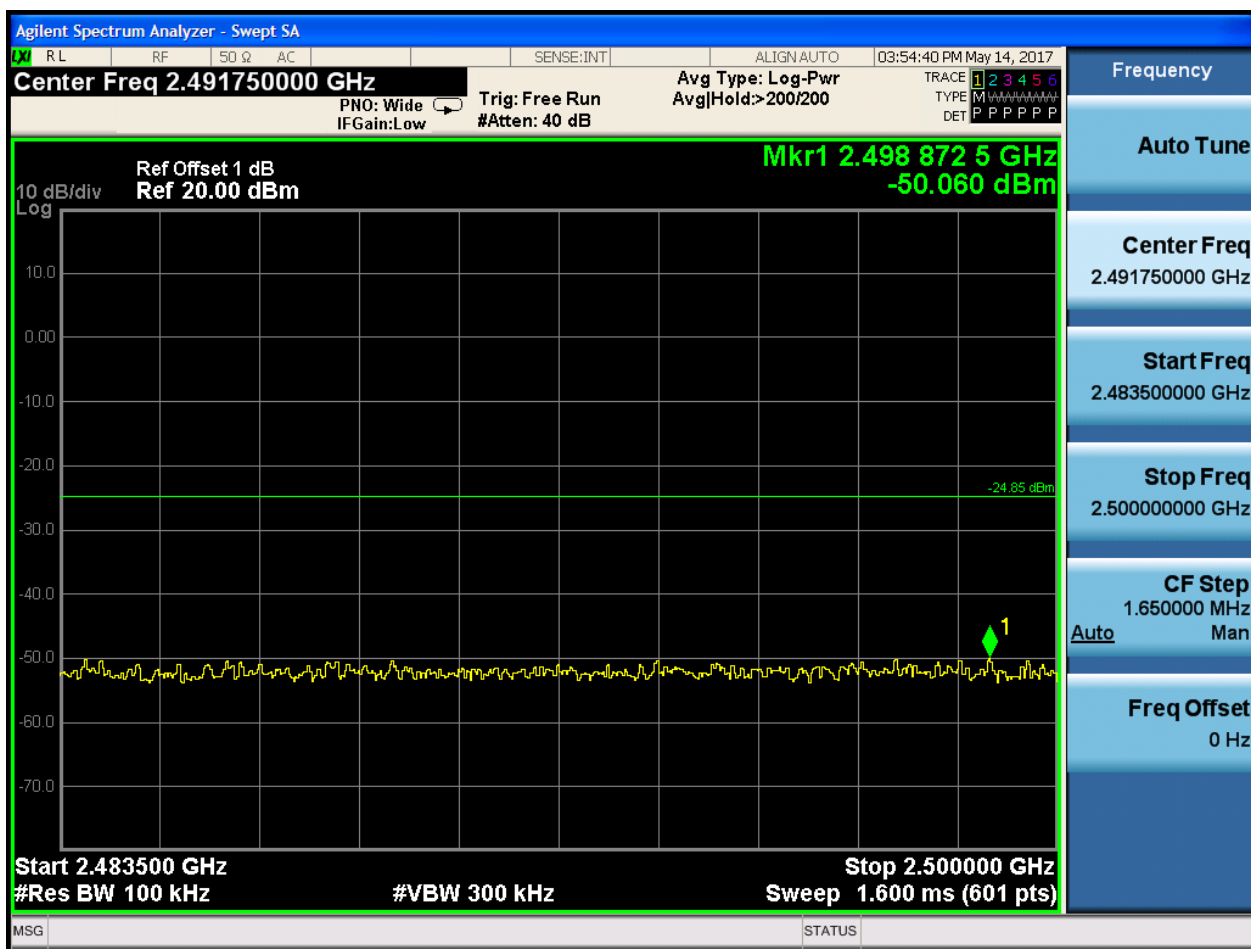
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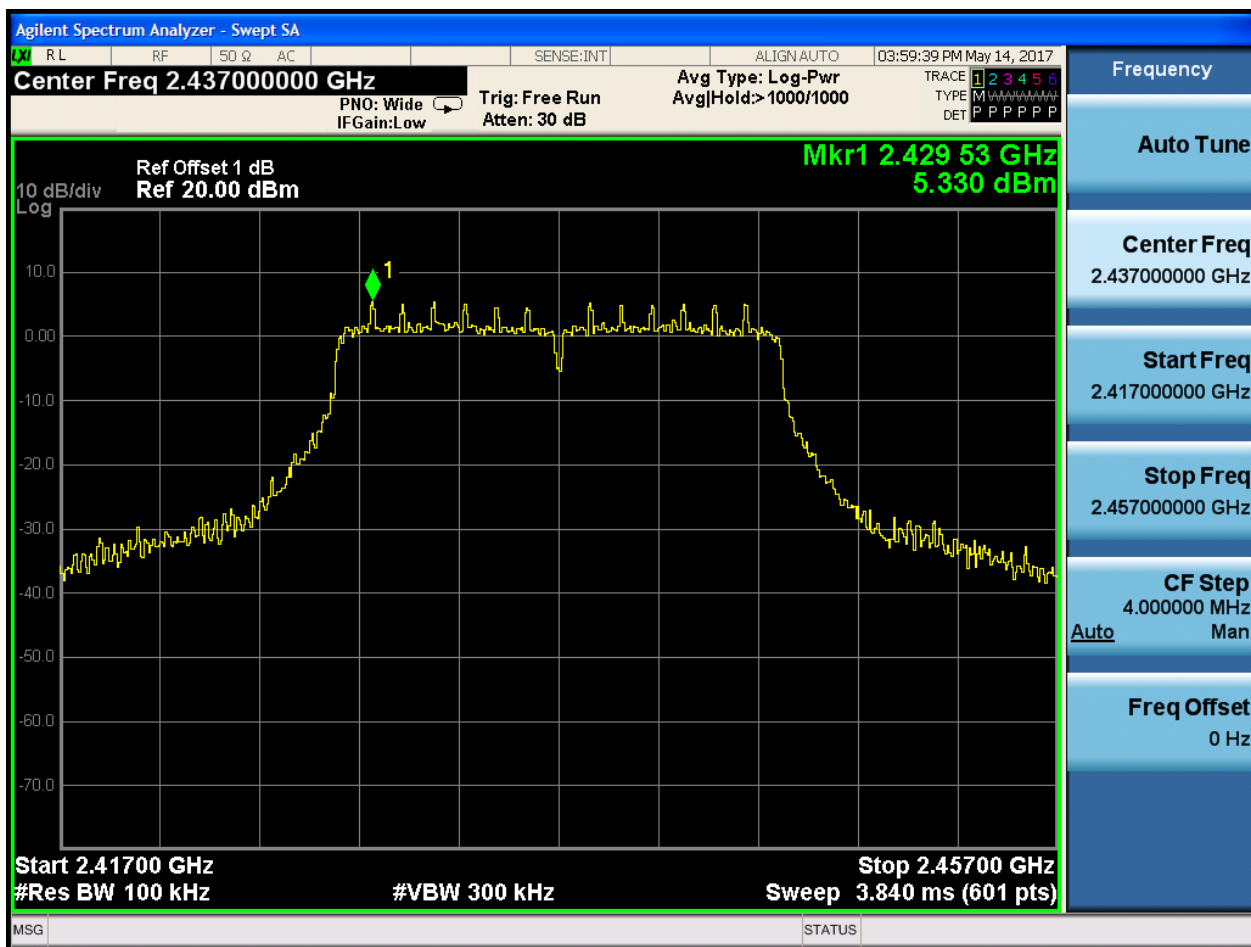






2.8 11N20_M@Ant 1

Pref:





Puw:

